49 STEVENSON STREET
ENVIRONMENTAL IMPACT REPORT

DRAFT
81.705E

PUBLICATION DATE: JUNE 15, 1984
PUBLIC HEARING DATE: JULY 19, 1984
PUBLIC COMMENT PERIOD: JUNE 15 TO JULY 19, 1984

CITY AND COUNTY OF SAN FRANCISCO DEPARTMENT OF CITY PLANNING

WRITTEN COMMENTS SHOULD BE SENT TO THE ENVIRONMENTAL REVIEW OFFICER
450 McALLISTER STREET, SAN FRANCISCO, CA 94102

DEPARTMENT OF CITY PLANNING 450 McALLISTER STREET · SAN FRANCISCO, CALIFORNIA 94102

June 15, 1984

TO: Distribution List for the 49 Stevenson Street EIR

FROM: Alec S. Bash, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for 49 Stevenson Street

This is the draft of the Environmental Impact Report (EIR) for 49 Stevenson Street. A public hearing will be held on the adequacy and accuracy of this document on July 19, 1984. After the public hearing, our office will prepare and publish a document titled "Summary of Comments and Responses," which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the draft will automatically receive a copy of the Comments and Responses document along with notice of the date reserved for certification (usually about 9 weeks after the hearing on the draft); others may receive such copies and notice on request or by visiting our office. This Draft EIR, together with the Summary of Comments and Responses document, will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR if deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you want a copy of the Final EIR, please so indicate in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the Final EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR. Copies will also be avilable at the Department of City Planning, 450 McAllister Street - 5th floor, San Francisco, California 94102.

Thank you for your interest in this project.

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

To: Department of City Planning, Office of Environmental Review

Re: 49 Stevenson Street Final EIR (81.705E)

(____) Please send me a copy of the (Insert Name of Project) Final EIR.

Signed: _____

Print Your Name and Address Below:

_____
(Name)

_____
(House Number and Street)

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(City, State and Zip Code)

If you are requesting an FEIR, please tear this page out, show your address above, fold the mailer so that your return address and the Department of City Planning's address is exposed, seal, add postage and mail.)

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450 McAllister Street - 5th Floor
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ATTN: Mr. Paul Rosetter

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DEPARTMENT OF CITY PLANNING 450 McALLISTER STREET · SAN FRANCISCO, CALIFORNIA 94102

49 STEVENSON STREET
DRAFT ENVIORNMENTAL IMPACT STATEMENT
81.705E

Publication Date: June 15, 1984
Publication Date: July 19, 1984
Public Comment Period: June 15, 1984 to July 19, 1984

Written Comments Should be Sent to the Environmental Review Office
450 McAllister Street, San Francisco, CA 94102

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I. SUMMARY

A. PROJECT DESCRIPTION

The 12,840-square-foot project site is located on Assessor's Block 3708, Lots 38, 39 and 40 at the southwest corner of the Stevenson and Ecker intersection in a C-3-0 (Downtown Office) district. The site is currently developed with three structures (49, 53 and 55 Stevenson). All structures would be demolished and replaced with the proposed project.

The project sponsor, Northwest Projects Associates Limited Partnership, proposes to construct a 20-story office building with ground and second floor retail space. The 49 Stevenson Street project would rise 253 feet to the top floor and cover approximately 12,000 square feet of ground area. The structure would contain approximately 169,600 gross square feet of office space and 9,800 gross square feet of retail space. Deducting existing office and retail square footages the project would provide approximately 136,900 gross square feet of net new office space and 2,900 less gross square feet of retail space than currently exists on site. The project would not provide parking. Access to the project's two loading docks would be from Stevenson Street.

The project sponsor estimates construction would cost approximately $16.5 million (in 1983 dollars) including tenant improvements and would take about 15 to 18 months to complete.

B. ENVIRONMENTAL IMPACTS

1. Initial Study

An Initial Study was prepared for the 49 Stevenson Street project to identify potential environmental issues resulting from the proposed project; these issues are covered in this EIR. Certain potential environmental issues were determined to be insignificant and are

therefore not addressed in this EIR, including operational noise, utilities and public services (except fire protection services), biology, health hazards, surface water, archaeological resources and project-generated air quality impacts. A copy of the Final Initial Study is attached to this report as Appendix A, page A-1.

2. Land Use and Zoning

The project would comply with zoning, height and floor area requirements of the Planning Code. Three existing structures would be replaced by the proposed 253-foot-tall building. Existing businesses would be relocated to the new structure to the extent possible. The project would contribute cumulatively to new and proposed development occurring in the South of Market area in general and within the immediate vicinity in particular (page 59). Office projects proposed in the South of Market area are included in all cumulative analysis for downtown office development.

3. Urban Design and Visual Quality

The proposed project would generally respond to provisions of the Urban Design Plan. The height and overall building design would visually relate to other high-rise structures in the project area (page 61). Scenic views from public spaces in the City would not be obstructed by the project, however, views from adjacent buildings could be blocked above the fourth level (page 66).

4. Shadows and Wind

Most of the surrounding area is in shadow from existing or proposed buildings. The project would cast new shadows on portions of Tishman Plaza, not currently shaded during spring, fall and winter months. Some of this newly shaded area would receive overlapping shadows from the recently approved 71 Stevenson project and the proposed Lincoln Plaza project (page 74). The pedestrian comfort and hazard criterion would not be exceeded as a result of project-related wind impacts.

5. Cultural and Historic Resources

The project would demolish three buildings (49, 53 and 55 Stevenson) rated "C" by Heritage; 49 and 55 Stevenson were not rated in the architectural survey done by the Department of City Planning, 53 Stevenson is rated "1" in the survey. None of the buildings are included on a list of architecturally and/or historically significant buildings adopted by City Planning Resolution 8600 (page 86).

6. Transportation

The proposed project would generate a net increase of about 2,040 net new daily person trips to and from the project site. Of these, a total of 215 outbound trips would occur during the peak hour and 335 trips during the peak two-hour period (page 89).

The project is located in a C-3 district where off-street parking is not required by the Planning Code. The project would not provide off-street parking spaces and would contain two freight loading spaces (page 105).

The project would generate a parking demand for about 67 long-term and 7 short-term parking spaces. The project and cumulative South of Market and downtown development would generally saturate available parking throughout the downtown area (page 106).

7. Air Quality

Projected CO concentrations for 1990 were calculated for the two intersections near the project site. The results indicate that although both the state and federal eight-hour average CO standards are violated under current existing conditions at Mission/First, CO concentrations are predicted to be lower in 1990 (page 115).

8. Construction Noise

The noisiest activity associated with the construction of the proposed project would be the use of pile drivers. Peak noise levels would be expected to reach about 105 dBA in outdoor plaza areas nearest the site. Interior peak noise levels would reach about 90 dBA with open windows and 80 dBA with closed windows. During pile driving operations office workers would find it difficult to converse or use the telephone (page 119).

9. Energy

The total estimated annual energy use within the proposed project (based upon other City projects and Title 24 compliance) would be 33 billion BTU or 5,900 barrels of oil (page 122).

10. Geology and Seismicity

About 5,000 tons of artificial fill would be removed from the site. Piles would be used as foundation support for the building due to unstable soil conditions. Because the piles

would penetrate to stable materials rather than artificial fill, the structure would not be subject to the densification and liquefaction hazards associated with fill during seismic events (page 130). Major on-site impacts related to an earthquake with the Richter magnitude of the 1906 San Francisco earthquake would be estimated to be of strong to very strong intensity (page 130).

11. Downtown Fire Protection Services

The project would conform with the Life Safety provisions of the City Building Code. Although present code regulations permit buildings on narrow streets, the narrowness of Stevenson and Ecker Streets could hinder an orderly evacuation. The proposed project would adhere to Fire Department recommendations by providing building access to both Stevenson and Ecker Streets via two separate stairwells on the south side of the building (page 132).

12. Employment, Housing and Fiscal Factors

Existing on-site uses are estimated to generate 171 jobs. The project would provide additional permanent employment for as estimated 552 persons, including 548 office workers, 12 janitorial/service workers and 8 fewer retail workers than currently existing on site. Approximately 600 additional jobs in the Bay Area would be indirectly created through the multiplier effect (page 136). The potential increased revenues to the City would be approximately $514,700 annually (page 144).

C. MITIGATION MEASURES

MITIGATION MEASURES INCLUDED IN THE PROPOSED PROJECT

- Within a full year of occupancy of the project, the sponsor would conduct a survey to assess actual trip generation patterns of project occupants and actual pick-up and drop-off areas for car pools and van pools. This information would be made available to the Department of City Planning (page 151).

- Adherence to the OHPP requirements by causing 122 housing units to be constructed off-site (page 156).

- Notification to and coordination with the Environmental Review Officer and the President of the Landmarks Preservation Advisory Board if evidence of significant cultural or historic artifacts are found during project excavation (page 153).

- During excavation, the project contractor would mechanically sweep streets adjacent to the site to prevent siltation of storm drains (page 153).

MITIGATION MEASURES NOT INCLUDED IN THE PROPOSED PROJECT

- Various energy-saving devices (e.g., individual utility metering) are under consideration by the project sponsor. Final decisions would be made on the basis of life-cycle costing and compatibility with the overall design (page 154).

D. ALTERNATIVES

1. No Project

This alternative would involve no change to the project site as it now exists and no environmental impacts associated with the proposed project would occur. The project sponsor has rejected this alternative because it would not provide maximum investment potential of the site (page 158).

2. Project Consistent With The Downtown Plan

An alternative designed to conform with the Downtown Plan would be reduced in height and overall size. The design of this alternative would feature one setback instead of the multiple-setback design of the proposed project. However, given the same square footages, a design conforming to the Downtown Plan could also incorporate multiple setbacks but would be higher and would begin to generate more shadow impacts approaching the proposed project. The structure would rise approximately 191 feet (16 stories) above grade and contain approximately 119,300 gross square feet (gsf) of office space (86,600 gsf of net new office space), and 10,000 gross square feet of retail; no off-street parking would be provided. The reduction of office space would generate fewer traffic-related impacts and environmental impacts in general would be slightly less due to the reduced size of this alternative.

The project sponsor has rejected this alternative because it does not provide the amount of office space permitted by the existing Planning Code and because the reduction in office space could increase rental costs and limit the return on project investment (page 159).

3. Alternative Mixed-Use Ratio

This alternative would consist of a structure identical to the proposed project except the second floor would contain office instead of retail space. Thus, approximately 175,700 gross square feet of office space and 3,700 gross square feet of retail space would be provided with this alternative.

The slight increase in office space and reduction in commercial space would slightly decrease transportation impacts and slightly increase all other environmental impacts. The project sponsor has rejected this alternative because at this time the sponsor prefers the mixed-use ratio of the proposed project and feels that two levels of commercial floor area would provide for more design-related pedestrian amenities (page 167).

4. Design Casting No Shadows On Tishman Plaza

This alternative is designed so that direct sunlight access to Tishman Plaza can be maintained during critical periods (i.e., between the hours of 11 a.m. and 2 p.m. from March 21 to September 21). Thus, design considerations would limit this alternative's height to 103 feet (eight stories) and total square footage to 72,000 gsf, including 57,700 gsf of office space (25,000 gsf net new office space) and 9,800 gsf of retail space (a reduction of 2,900 gsf from the existing on-site retail area).

The 150-foot reduction in height from the proposed project would decrease its overall visibility from close and distant viewpoints; shadows cast by this alternative would not affect Tishman Plaza during critical periods. The 25,000 gsf increase in net new office space (coupled with the net reduction in retail area) would result in this alternative generating about the same person trips as now generated by the site. All other environmental impacts would be proportionally less than the proposed project due to the reduced size of this alternative. The project sponsor has rejected this alternative because the reduction in overall floor space would not, in the sponsor's opinion, realize a reasonable return on his investment and would, in fact, result in no project (page 168).

II. PROJECT DESCRIPTION

A. OBJECTIVES OF PROJECT SPONSOR

The project sponsor, Northwest Projects Associates Limited Partnership, proposes to construct a 20-story office building with ground and second floor retail space in downtown San Francisco, one-half block south of Market Street. The project site is within an area that is experiencing an influx of new development. It is the goal of the project sponsor to provide an office tower that would be harmonious with this new development while complementing and enhancing the existing character of the area.

B. LOCATION OF THE PROJECT SITE

The proposed 49 Stevenson Street building would be located within the City's central business district, at the southwest corner of Stevenson and Ecker Streets. The project site is located on Assessor's Block 3708, bounded by Market, First, Mission and Second Streets. Several small streets cut through the block including Stevenson and Ecker. The location of the project site is shown in Figure 1, page 8. The 12,840-square-foot project site consists of Lots 38 and 39, which front on Stevenson Street, and Lot 40, which fronts on Stevenson and Ecker Streets. The site is in the C-3-0 (Downtown Office) district. The basic floor area ratio (FAR) applicable to the C-3-0 district is 14:1; thus any building on the site may contain a gross floor area of up to fourteen times the area of the lot. The applicable height and bulk district for the site is 700-I, which allows a building height of up to 700 feet. The maximum dimensions of an "I" bulk district allow full site coverage up to 150 feet in height. Between 150 feet and the 700-foot height limit the maximum building length is 170 feet and the maximum diagonal dimension is 200 feet.

C. PROJECT CHARACTERISTICS

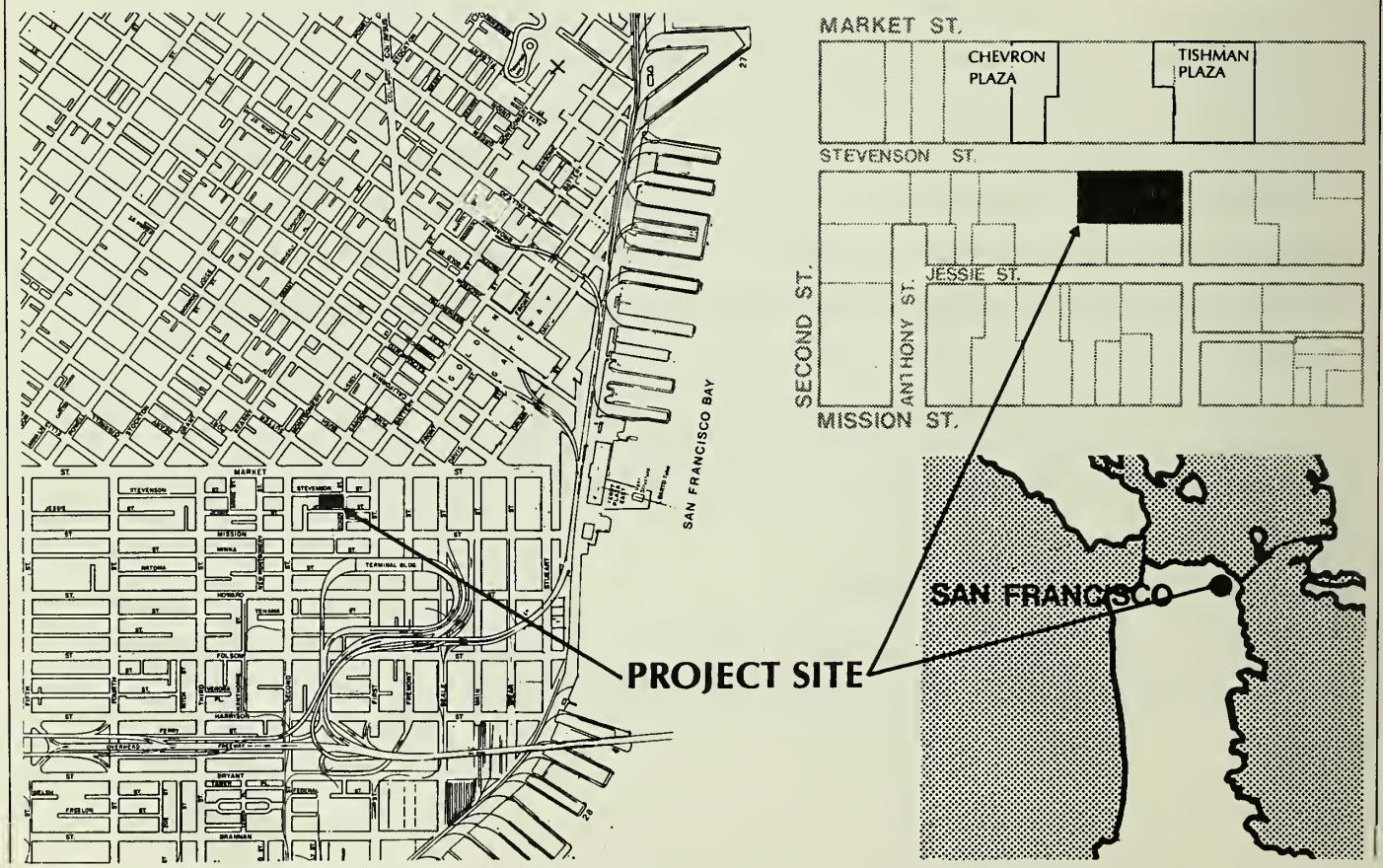
The project site is currently developed with three buildings at 49, 53 and 55 Stevenson. All buildings located on the site would be demolished and replaced with the proposed project.

SITE LOCATION

1

SOURCE: EIP CORPORATION

NO SCALE



The total project, including office, retail, basement utility, mechanical and service space would be approximately 193,800 gross square feet. Of the total square footage, about 169,600 gross square feet of office space and 9,800 square feet of ground and second-level retail space would be provided. Deducting square footages of existing office and retail space, the project would provide approximately 136,900 gross square feet of net new[1] office space and 2,900 less gross square feet of retail space than currently exists on-site.

The building would contain 20 stories, a utility basement and a rooftop penthouse containing mechanical equipment. The structure would be 253 feet tall to the top floor. With the mechanical penthouse, the proposed project would rise 265 feet above grade[2] (see Figures 2 through 7, pages 10 through 15). The 49 Stevenson project would conform to the 700-foot height limit and the "I" bulk district limitations prescribed for the area. The proposed project would not provide parking. Access to the project's two twelve-by-thirty-five-foot loading docks and trash dumpster storage area would be from Stevenson Street.

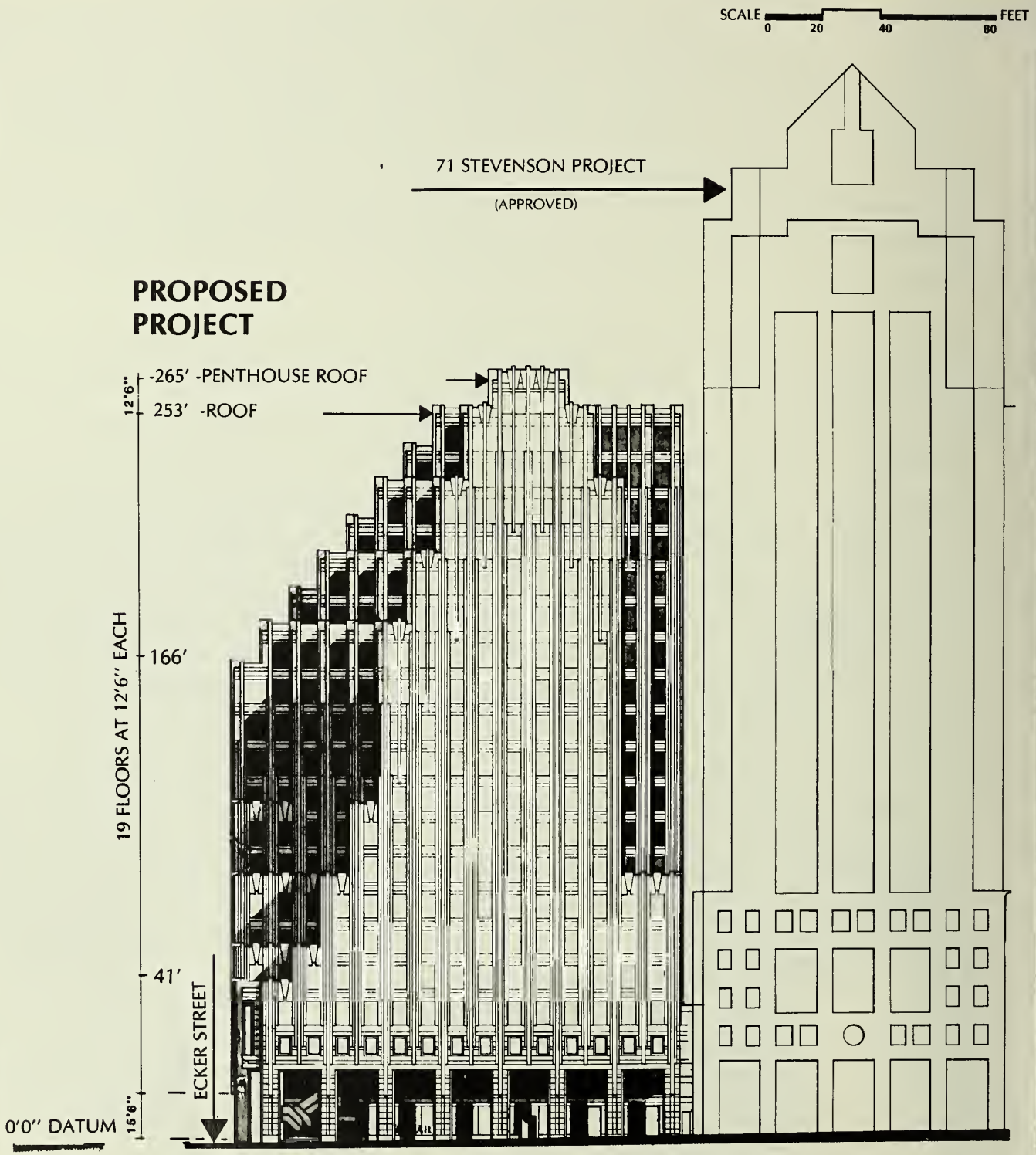
The ground or lobby level would contain approximately 3,700 gross square feet of retail space and would also include access to the lobby area and dumpster storage/freight loading facilities. A colonnade would extend about 18 feet from the enclosed portion of the lobby level and second level, forming an overhang for the entire length of the building facade (Figure 4, page 12). The structure would cover approximately 12,000 square feet of the project site. Elevator access to approximately 6,100 gross square feet of second-floor retail space would be from the northeast corner of the building. The third through the twentieth floors would vary in size from approximately 12,000 square feet on the third floor to 5,200 square feet on the twentieth floor (see Figure 6, page 14). Emergency access would be provided to both Stevenson and Ecker Streets via two separate stairwells located at the south side of the building.

D. PROJECT SCHEDULE AND REQUIRED APPROVALS

The architectural firm for the proposed project is Kaplan, McLaughlin and Diaz of San Francisco. The estimated construction cost of the project including tenant improvements is $16,500,000 (in 1983 dollars). Construction would be expected to occur over 15 to 18 months beginning in mid-1984 and completed the end of 1985.

STEVENSON STREET ELEVATION

SOURCE: KAPLAN, McLAUGHLIN AND DIAZ, SEPTEMBER, 1983

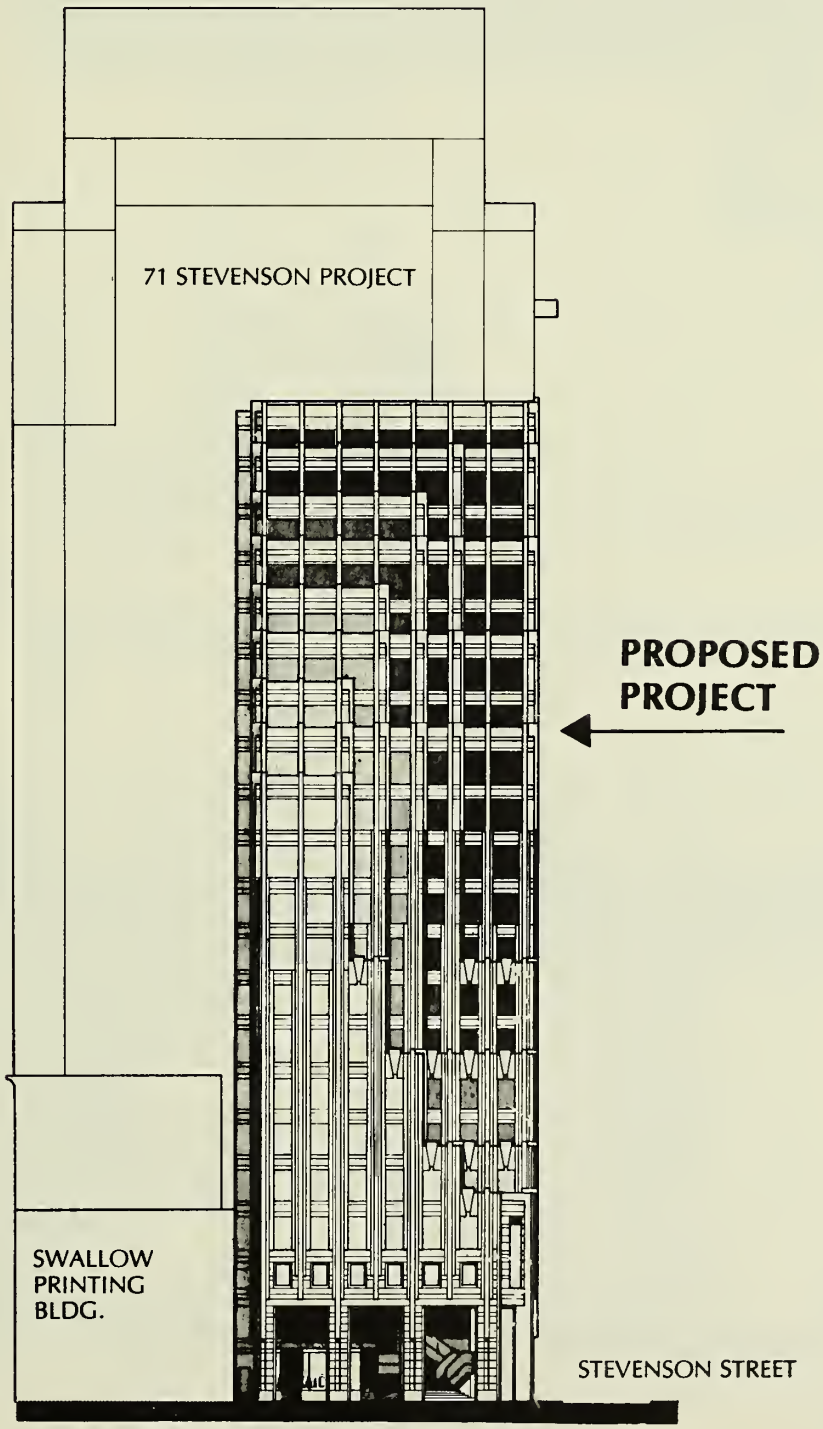


ECKER STREET ELEVATION

3

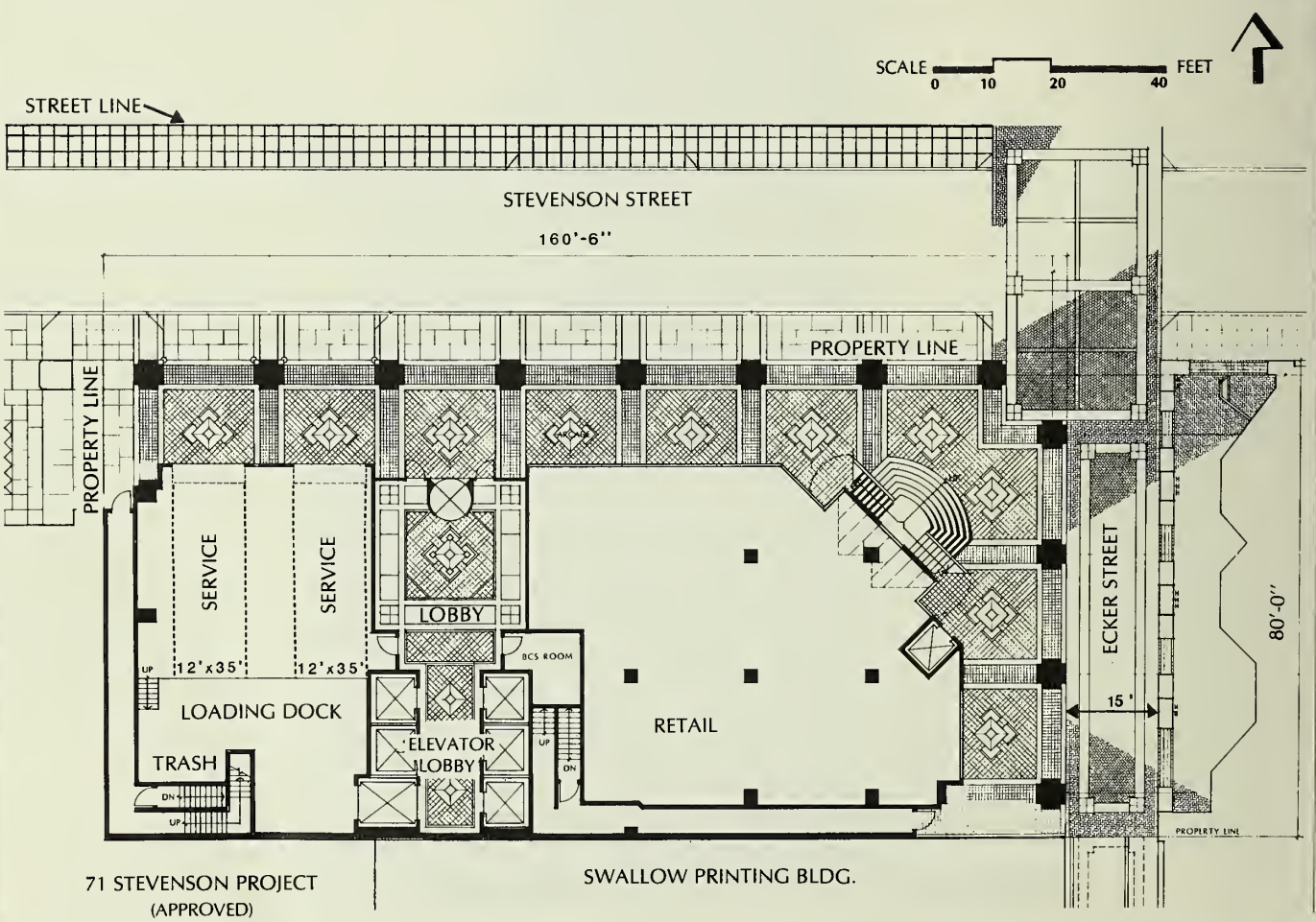
SOURCE: KAPLAN, McLAUGHLIN AND DIAZ, SEPTEMBER, 1983

SCALE 0 20 40 80 FEET



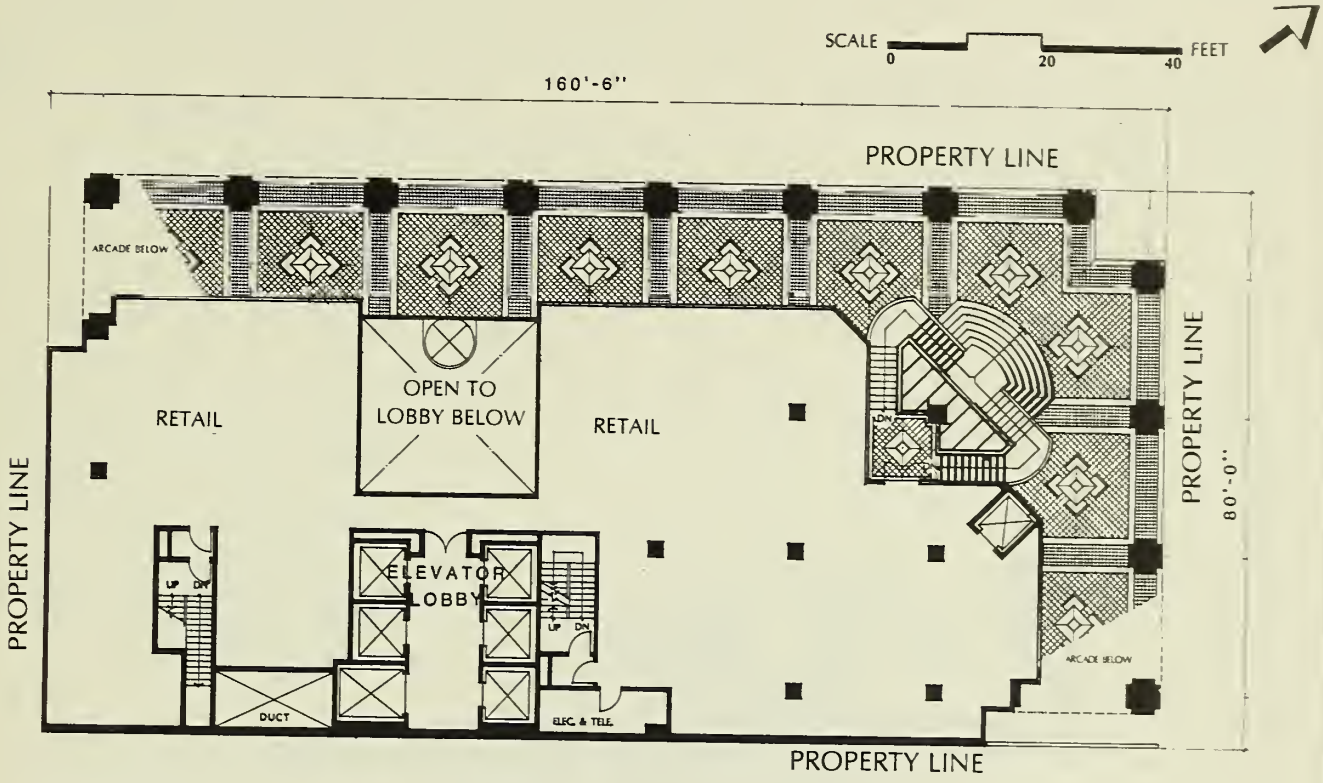
GROUND FLOOR PLAN

SOURCE: KAPLAN , McLAUGHLIN AND DIAZ, SEPTEMBER, 1983

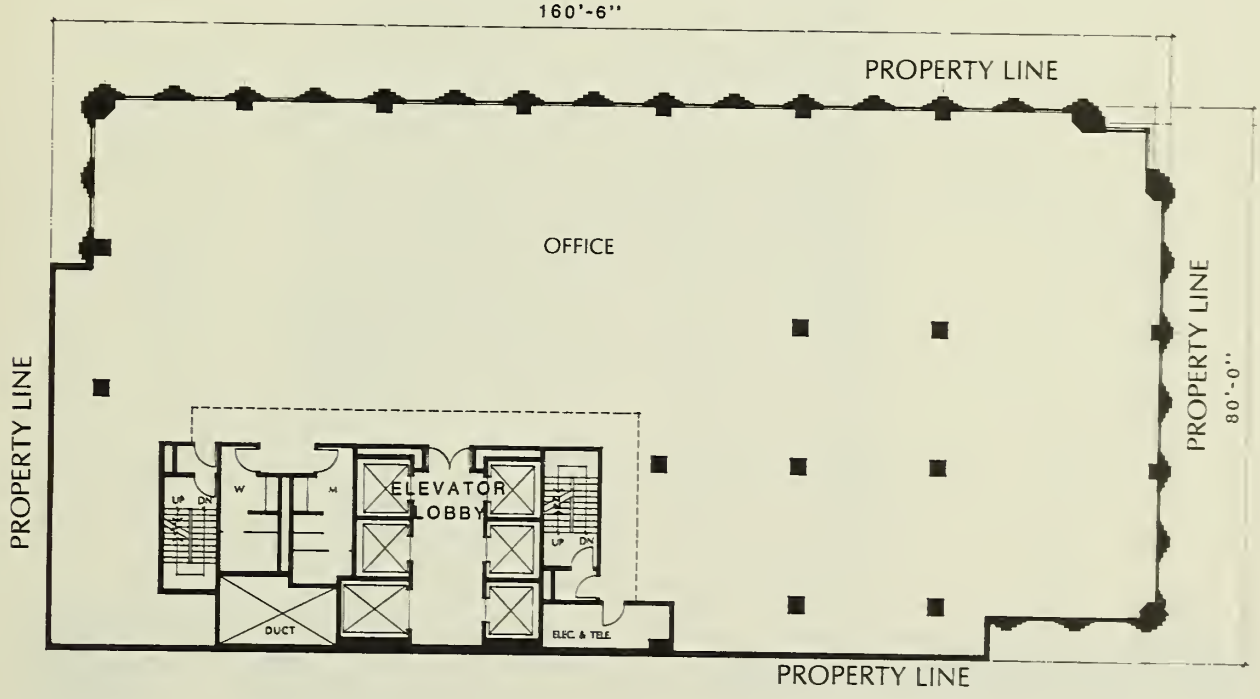


SECOND AND THIRD FLOOR PLANS

SOURCE: KAPLAN McLAUGHLIN AND DIAZ, SEPTEMBER 3, 1983



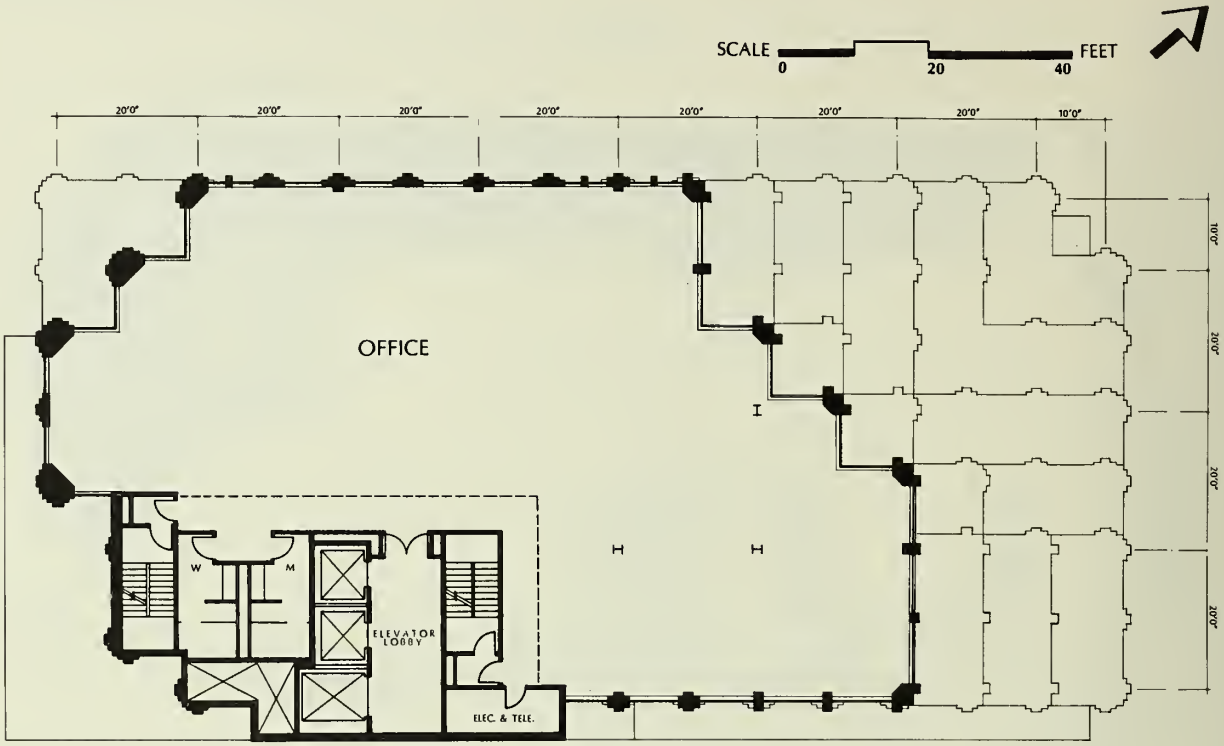
2ND FLOOR



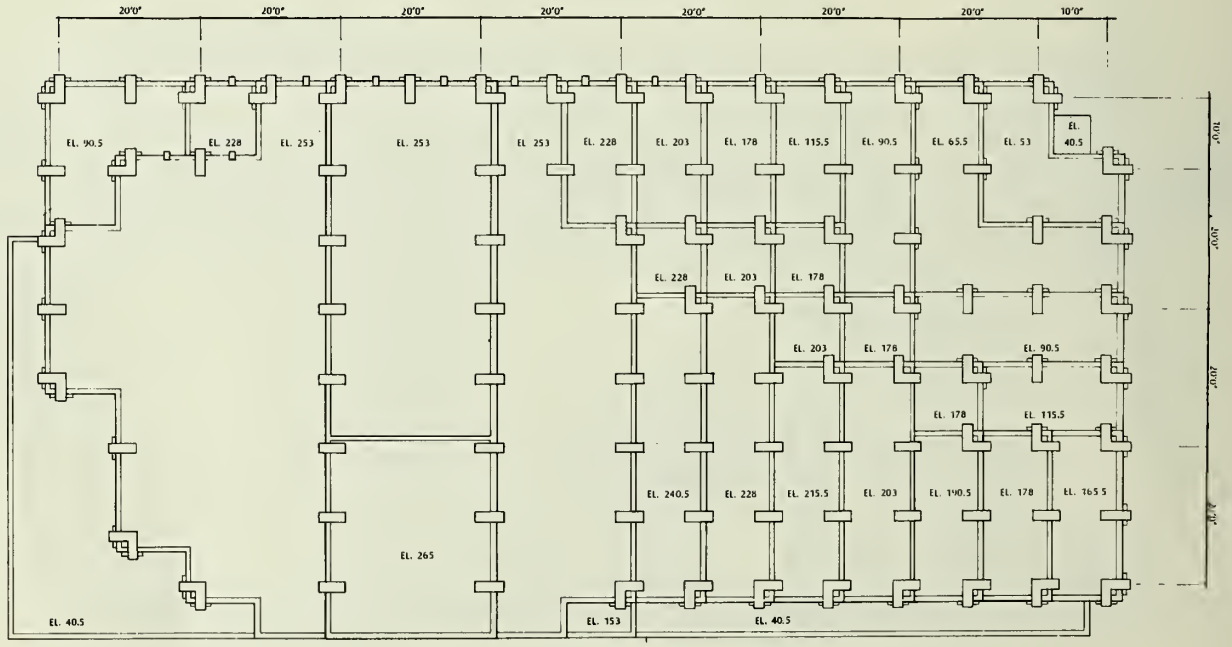
3RD FLOOR

SIXTEENTH FLOOR PLAN, ROOF PLAN

SOURCE: KAPLAN, McLAUGHLIN AND DIAZ, SEPTEMBER, 1983



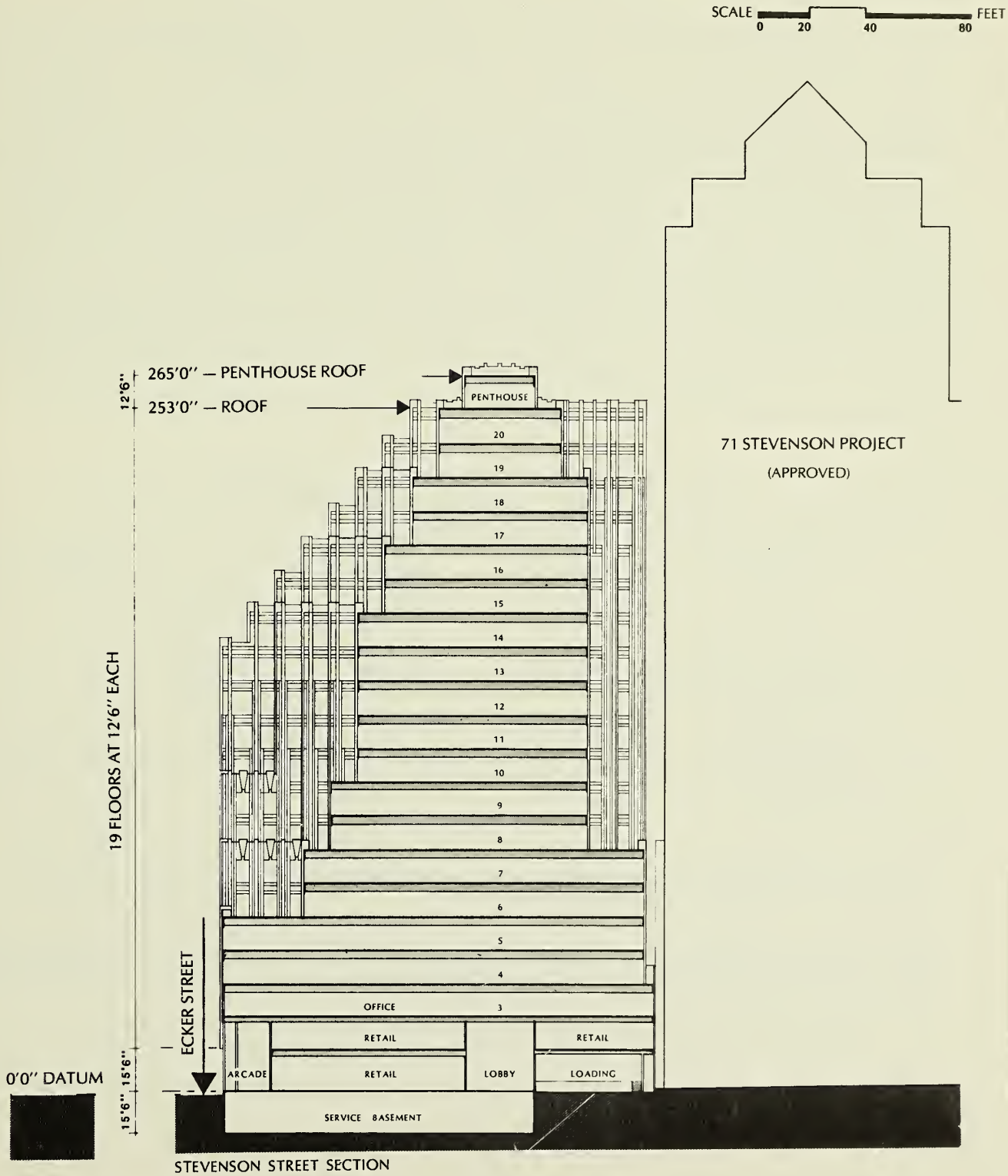
16TH FLOOR (TYPICAL UPPER LEVEL FLOOR PLAN)



ROOF PLAN

LONGITUDINAL BUILDING SECTIONS

SOURCE: KAPLAN, McLAUGHLIN AND DIAZ, SEPTEMBER , 1983



STEVENSON STREET SECTION

Certification of the Environmental Impact Report (EIR) by the City Planning Commission following public review of the Draft EIR (DEIR) and responses to comments collected during the DEIR review period is the first step in reviewing the proposed project.

A building permit application (No. 8304134) was filed May 11, 1983 with the City's Bureau of Building Inspection.

The proposed project would be subject to the policy of the City Planning Commission to review almost all downtown projects under the Commission's powers of Discretionary Review.[3] Evaluation criteria under this process include the protection and enhancement of the pedestrian environment; preservation of architecturally and historically significant buildings; adequate and appropriate means of transportation to and from the project site; energy conservation; physical relationship of the proposed buildings to their environs; and effects on views from public areas and on the City skyline. Under its Discretionary Review procedures, the City Planning Commission would review the building design and its environmental context, then act to either approve, approve with conditions or disapprove the building permit for the project.

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[1]Net new space refers to the actual increase in floor area space on the project site. For this project net new space is calculated as follows:

	gsf office	gsf retail
Proposed Project	169,600	9,800
Currently Existing On-Site	-32,700	-12,700
Net New Space	136,900	-2,900

See Section III.A., Land Use Setting, Table 1, page 17 for an itemization of existing land uses.

[2]Height of a structure, as defined in Section 260(b) excludes the 20 feet contained in the project's rooftop mechanical penthouse.

[3]San Francisco Planning Commission, Resolution 8474, adopted January 17, 1980, applicable to all proposals in the C-3 district.

III. ENVIRONMENTAL SETTING

A. LAND USE AND ZONING

1. Land Use

The project site contains three lots with a total area of 12,840 square feet. Lot 38 is occupied by a four-story office building with ground floor retail; Lot 39 contains the one-story Yank Sing restaurant; and Lot 40 is currently developed with a four-story office/ground floor retail building (see Figure 8, page 18). Existing land uses, lot sizes, height and distribution of gross area are shown in Table 1 below. All existing structures would be demolished.

TABLE 1

EXISTING LAND USES ON THE PROJECT SITE

Street Address	Lot 38 55 Stevenson	Lot 39 53 Stevenson	Lot 40 49 Stevenson
Lot Area (square feet)	1,960	1,920	8,960
Lot Coverage	100%	100%	100%
Building Height	45 feet	15 feet	40 feet
Stories	4 + basement	1 [1]	4 + basement
Gross Area (gsf)	7,700	1,900	35,800
Office (gsf)	5,800	---	26,900
Retail/Service	1,900	1,900	8,900

[1] Field check by EIP, June 7, 1983 indicated a discrepancy in the Recht Hausrath study for 53 Stevenson.

Source: Recht Hausrath and Associates, "Data and Calculations for the Downtown EIR," prepared for San Francisco Department of City Planning, July 7, 1982.

PROJECT SITE PHOTOGRAPHS

SOURCE: EIP CORPORATION

PROJECT SITE, SOUTH SIDE OF STEVENSON STREET.

ECKER STREET, BETWEEN PROJECT SITE (Right) AND ADJACENT BUILDINGS (Left).

Land uses in the project vicinity consist primarily of office buildings with ground-floor retail, commercial retail establishments and an educational institution, Golden Gate University. A large percentage of architecturally and/or historically significant buildings are located in the project block and would not be involved in any current development plans. They include: Golden Gate University Law School Library; One Ecker, a brick warehouse; 64 Jessie, a concrete warehouse; and the California Farmer Building, designed by Willis Polk. These buildings are described in detail in Section III.C., Architectural Resources, page 36. Most of the newer high-rise development is located north of the site toward Market Street.

In the same Assessor's Block as 49 Stevenson, between Market and Stevenson Streets, there are four office highrises that have been built since the mid-1960s: the 35-story 595 Market Street building (at Market and Second Streets); the 22-and 39-story Chevron buildings (mid-block); and the 38-story Tishman Building (at Market and First Streets). Along the south side of Mission Street and the west side of Second Street buildings are older and heights drop off to generally not more than six stories.

There are seven additional office developments either under formal review, approved or under construction in the project vicinity (see Figure 9, page 20, and Table 2, page 21). Adjacent to the proposed project at 71 Stevenson a 23-story office building has recently been approved and at 562 Mission (Lincoln Plaza) a 30-story building is proposed.

Existing uses that would be replaced by new development within the project block include a five-story warehouse and 300-space parking garage on the 71 Stevenson site and two six-story buildings, a prefabricated metal diner and a 100-space surface parking lot on the Lincoln Plaza site. Plans for New Montgomery Place, 90 New Montgomery and Central Plaza (all approved) also include demolition of existing structures. Figure 9 shows land uses in the project area as well as existing and proposed development.

EXISTING LAND USE/CUMULATIVE DEVELOPMENT

OFFICE

OFFICE/GROUND FLOOR RETAIL OR SERVICE

HOTEL

EDUCATIONAL

COMMERCIAL/RETAIL

PARKING

LIGHT INDUSTRY/ WAREHOUSE — W

VACANT LOT — VL

VACANT BUILDING — V

PROJECT SITE

PROJECTS UNDER REVIEW:

LINCOLN PLAZA — 1

PROJECTS UNDER CONSTRUCTION:

ONE SANSOME — 1

144 SECOND/MINNA — 2

PROJECTS APPROVED:

90 NEW MONTGOMERY — 1

NEW MONTGOMERY PLACE — 2

71 STEVENSON — 3

CENTRAL PLAZA — 4

SOURCE: EIP CORPORATION, MAY, 1983

SCALE 0 75 150 300 FEET

TABLE 2

OFFICE DEVELOPMENT IN THE PROJECT VICINITY[1,2]

	Office Gross Square Feet	
	Total New Construction	Net New Construction
Projects Under Review		
Lincoln Plaza (81.297 ED)	542,000	542,000
49 Stevenson (proposed project) (83.75E)	169,400	136,700
TOTAL	711,400	678,700
Projects Approved or Under Construction		
New Montgomery Place (81.245CDA)	231,500	217,400
71 Stevenson at Ecker (81.493ED)	324,600	324,600
90 New Montgomery (81.492ED)	124,300	124,300
Central Plaza (81.113ED)	353,100	136,300
144 Second at Minna (81.417ED)	30,000	30,000
One Sansome (81.308D)	603,000	603,000
TOTAL	1,666,500	1,435,600
TOTAL PLANNED OFFICE DEVELOPMENT	2,377,900	2,114,300

[1]As of March 10, 1984.

[2]See Figure 9 for location of above projects.

2. Cumulative Office Development Downtown

The proposed project, together with other major downtown office buildings under formal review (8.7 million net new square feet), approved (4.8 million net new square feet) and under construction (5.5 million net new square feet) would add about 19.0 million gross square feet of net new office space if all were to be built (see Appendix E, Table E-1, page A-62 of this report). This list subtracts existing office space, on the sites of new buildings, that would be demolished. Of the 19.0 million square feet of office space on the cumulative list, about 12.8 million are within the C-3 District.

Projections for alternatives as shown in Table VII.B. of the Downtown Plan Draft EIR (EE81.3, published March 16, 1984) for the C-3 district indicate the C-3 district would contain a total of about 70.5 million gross square feet of office space in 1990 and between 77.5 and 86.5 million gross square feet of office space in 2000, an increase of 15.4 to 24.4 million square feet over existing levels of 62.1 million square feet. The Downtown Plan would result in an increase of about 16.8 million square feet. These projections considered land availability, location preferences, market conditions and economic trends as independent variables, plus various zoning and planning policies of the Downtown Plan and the five alternatives analyzed in the Downtown Plan DEIR. The forecasts in the Downtown Plan DEIR are of space expected to be built and occupied in the C-3 District between 1984 and 2000.

The amounts of office space on the cumulative list and in these forecasts, although distinct from each other, can be compared. The list contains about 12.8 million square feet of office space in the C-3 District and the Downtown Plan DEIR indicates about 8.4 million square feet of office space being added to the C-3 District between 1984 and 1990. The 12.8 million square feet on the list would be expected to be absorbed in the mid-1990s.

Office space projections for all alternatives in the Downtown Plan DEIR for the year 2000 would exceed existing office space plus office space on the cumulative list, as the cumulative list cannot take into account projects not yet proposed. Office space on the cumulative list would be absorbed in the mid-1990s under all Downtown Plan DEIR alternatives. These comparisons are based on the assumption that all projects on the cumulative list would be built as proposed and projects not yet proposed (i.e., not on the cumulative list) would not be built before the years identified above. In addition, these comparisons are based only on projects on the cumulative list within the C-3 District.

3. Zoning

The project site is in a C-3-0 (Downtown Office) district (see Figure 10, page 24). Office and retail are permitted uses in this district or as stated in the Planning Code: "office development is supported by some related retail and service uses within the area, with unrelated uses excluded in order to conserve the supply of land in the core and its expansion areas for further development of major office buildings."[1] Buildings in this district may have a basic Floor Area Ratio (FAR) of 14:1; thus, the allowable gross floor area for the site would be 179,760 square feet.

The height and bulk district for the project site is 700-I, in which the maximum permitted height is 700 feet (see Figure 11, page 25). The maximum dimensions of an "I" bulk district allow full site coverage up to 150 feet in height. Between 150 feet and the 700-foot limit the maximum building length is 170 feet and the maximum diagonal dimension is 200 feet.

Off-street parking is not required by the Planning Code in a C-3 district, however, up to about 12,600 gsf of parking space is allowed as an accessory use.[2]

4. Conformance to Plans

Several Objectives and Policies in the Commerce and Industry Element of the Comprehensive Plan of San Francisco apply to the proposed project.[3]

> Objective 2, Policy 1: "Seek to retain existing commercial and industrial activity and to attract new such activity to the city."[4]

The proposed project would attract commercial activity to the City due to the new commercial space it would provide. The Eckers and Yank Sing Restaurants (49 and 53 Stevenson) have agreed to relocate within the new structure.

> Objective 6, Policy 1: "Encourage continued growth of prime downtown office activities so long as undesirable consequences of such growth can be avoided."[5]

ZONING DISTRICTS

10

DOWNTOWN OFFICE DISTRICT **C-3-O**

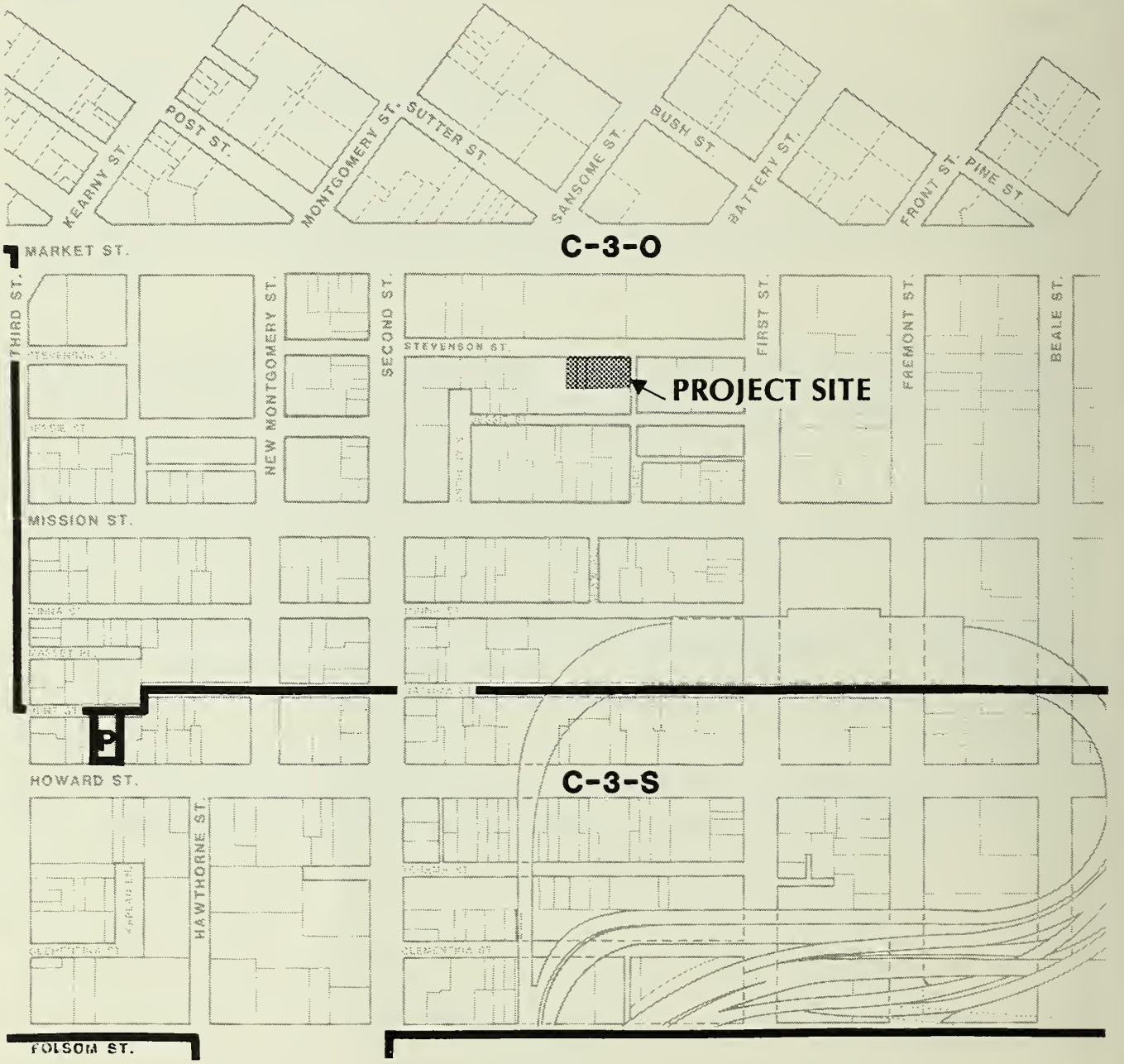
DOWNTOWN GENERAL COMMERCIAL DISTRICT **C-3-S**

PUBLIC USE DISTRICTS **P**

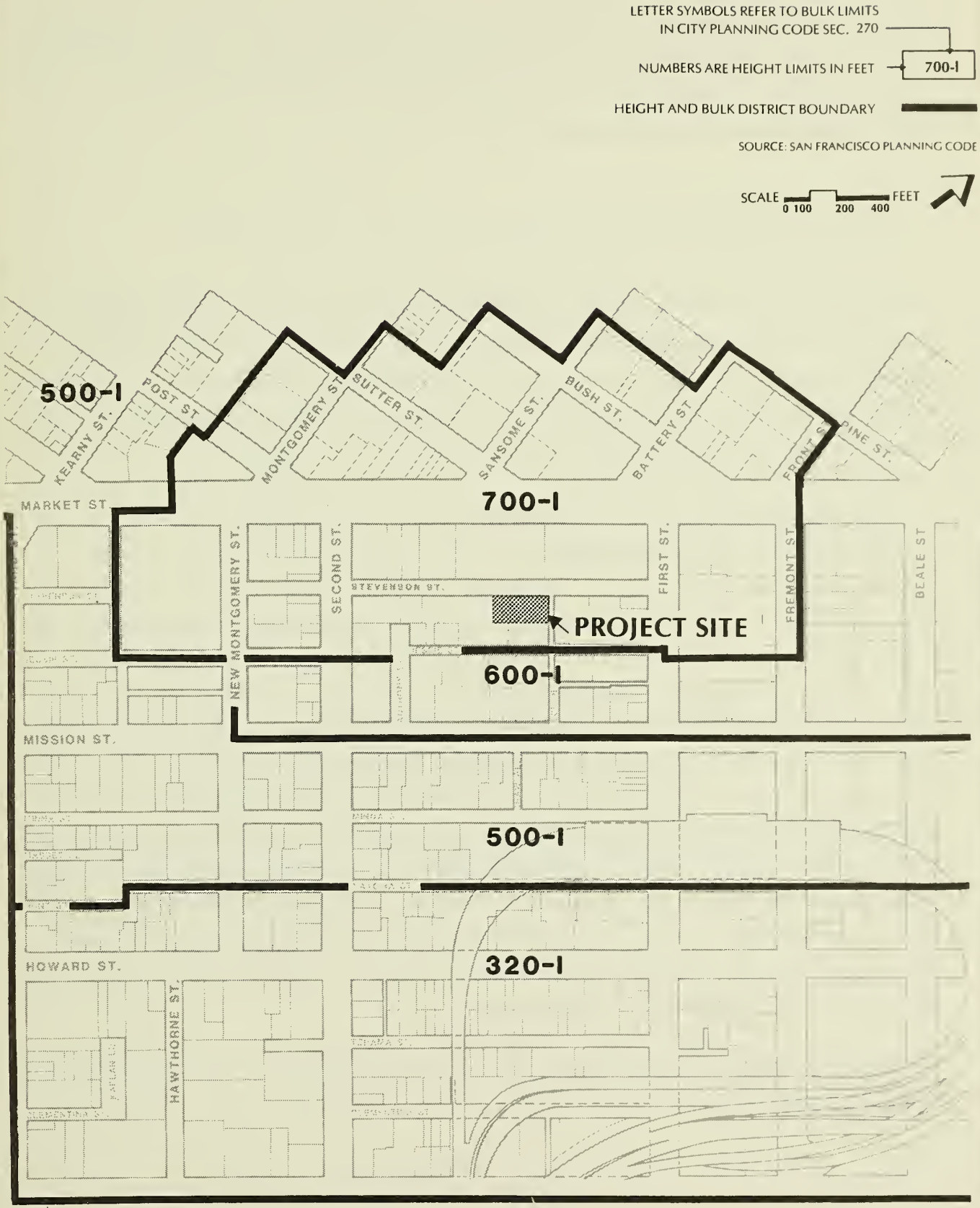
ZONING DISTRICT BOUNDARY

SOURCE: SAN FRANCISCO PLANNING CODE

SCALE 0 100 200 400 FEET



HEIGHT AND BULK DISTRICTS



The proposed project would help continue office development in downtown San Francisco.

Benefits and consequences of 49 Stevenson are discussed under specific headings in Section IV, Environmental Impacts, i.e., Transportation and Employment, pages 88 and 122, respectively. Mitigation measures which would minimize potential impacts of the project are addressed in Section V., page 134.

Objective 6, Policy 2: "Guide location of office development to maintain a compact downtown core so as to minimize displacement of other viable uses."[6]

As described in the Planning Code, this district "consists primarily of high quality office development" and "the intensity of building development is the highest in the City." The proposed project is on the edge of the area of highest intensity development within the C-3-0 district which has been expanding. Some of the uses displaced by such expansion have been office support, warehousing and other nonoffice uses.

Objective 6, Policy 3: "Assure that downtown development is compatible with the design and character of San Francisco."[7]

Within the block surrounding 49 Stevenson building heights range from one story to 38 stories. At a maximum height of 20 stories, the height of the proposed project would be more in scale with the taller buildings. However, the base of the building, that portion which would be most apparent to pedestrians in terms of visual interest would contain some elements common to many older buildings in the area. Clear glass, rather than tinted, would be used. The light-buff colored spandrels and columns would be decorative as well as functional like some of the more ornate older structures. By incorporating these features into the design, the street-level and first floor retail areas would enhance the pedestrian orientation and attraction as do some of the older, smaller-scale buildings nearby. As discussed in Section IV.C., Urban Design and Visual Quality Impacts, page 61, the architects for 49 Stevenson intend a design that respects the architectural diversity of new and old structures within the project area.

Objective 6, Policy 4: "Provide adequate amenities for those who live, work and use downtown."[8]

The project would provide pedestrian-level commercial uses that would include retail and restaurant activities serving office workers on the project site and from nearby areas. These proposed ground level amenities would be consistent with Policy 4. The arcade design at 49 Stevenson, would in effect widen the Ecker Street pedestrian corridor.

The 1958 Land Use section of the Comprehensive Plan designates the 49 Stevenson site as being in a Business and Services area.[9]

The Downtown Plan[10] contains a series of regulatory proposals for managing development in the downtown area. In general the Downtown Plan proposes to push the boundary of the C-3-0 district south to Folsom Street and redirect downtown office expansion south of Market Street. Under this plan the maximum basic allowable FAR for the site would be reduced from 14:1 to 10:1 with an ability to increase the FAR by use of a transfer of development rights. At an effective FAR of 14:1 the project as currently designed would not respond to the Downtown Plan without a transfer of development rights. The new height limit would be 500 feet, new bulk controls and a setback along Stevenson Street would be required. Table 5, page 68, outlines the relationship of the project to The Downtown Plan in Section IV.C., of this document. In addition, an alternative design that would comply with all the provisions of the Downtown Plan is presented in Section VII.B. Alternative Two, page 142.

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[1]City and County of San Francisco, Planning Code, Section 210.3, 1979 edition.

[2]Ibid., Section 204.5(c), 179,760 gsf (gross floor area) x 7% = 12,583.

[3]San Francisco Department of City Planning, Commerce and Industry Policies and Objectives, adopted by the City Planning Commission, Resolution 8001, June 29, 1983, page 80.

[4]Ibid., page 8.

[5]Ibid., page 24.

[6]Ibid., page 25.

[7]Ibid., page 26.

[8]Ibid., page 27.

[9]San Francisco Department of City Planning, Land Use Section of the Master Plan, adopted by the City Planning Commission, Resolution 4120, January 29, 1953 and amended, Resolution 4863, April 10, 1958, revised 1966.

[10]San Francisco Department of City Planning, The Downtown Plan, A Proposal for Citizen Review, August 1983.

B. URBAN DESIGN AND VISUAL QUALITY

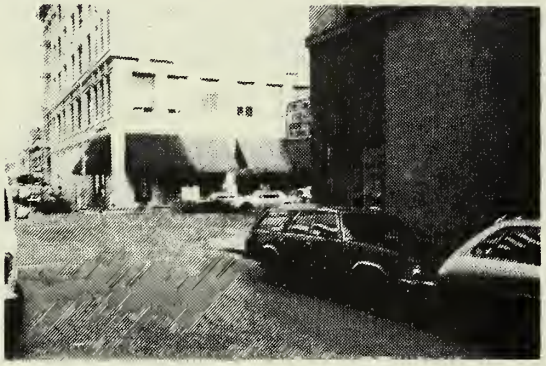
The proposed project site is located in an area south of Market Street that is undergoing change due to recent and current building construction (see Figure 9, page 20, Section III. A.). Although the project area was at one time primarily characterized by pre-1930 two- to four-story warehouse, manufacturing and commercial/office buildings, the project area today is becoming more intensively developed as older buildings are removed to allow the construction of high-rise office buildings. Current land uses thus contain a mix of high-rise and low-rise structures. Major open space areas are located north of the project site in Tishman and Chevron Garden Plazas. Tishman Plaza contributes significantly to the pedestrian environment and serves as a major right-of-way between Market Street and the interior portion of the project block (via Stevenson and Ecker Streets). Chevron Garden Plaza is an enclosed landscaped area which is not accessible from Stevenson Street. Public access is limited to a raised platform on the Market Street side which overlooks the garden area and provides an entrance to the Chevron Building. Photographs of the project area appear in Figures 12 through 16, pages 30 through 34.

The four-story brick building occupying the project site at 49 Stevenson reflects the general character of buildings constructed south of Market Street in the early part of the 20th century (see Figure 14, page 32). A number of structures in the area, including the 49 Stevenson building, have been renovated and converted to commercial and office use. The buildings on the project block lining the south side of Stevenson Street form a cohesive group of architecturally similar structures ranging from one to five stories in height. Office buildings along the north side of Stevenson Street range up to 39 stories in height (Figure 16, page 34), and are varied in their design and shape. These buildings do not contain ground level windows, shops or formal pedestrian entrances along Stevenson Street to add pedestrian interest but rather contain garage and loading entrances and emergency exits. Thus, the south side of Stevenson Street contains stronger pedestrian scale relationships which is augmented by storefront signs, windows and small restaurants that attract the attention of pedestrians.

The blocks south of Market Street in the project area are three to four times the size of blocks north of Market Street, and are traversed by a network of narrow streets and alleys that provide through-block vehicular and pedestrian access. Buildings are predominately

STEVENSON STREET PHOTOGRAPHS

SOURCE: EIP CORPORATION



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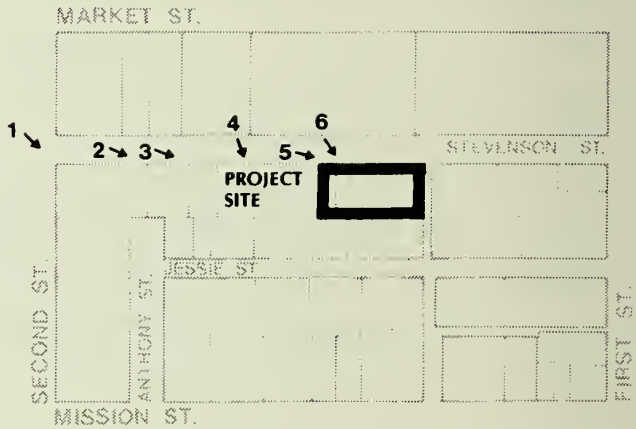

STEVENSON STREET PHOTOGRAPHS

SOURCE: EIP CORPORATION

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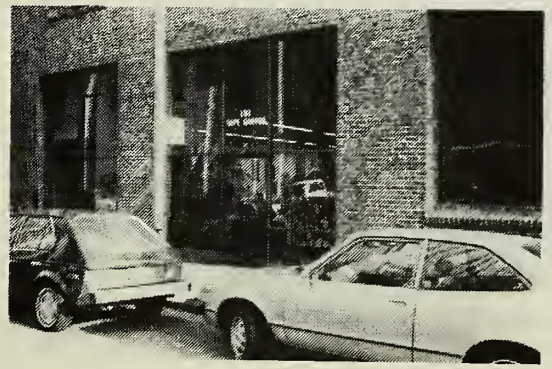

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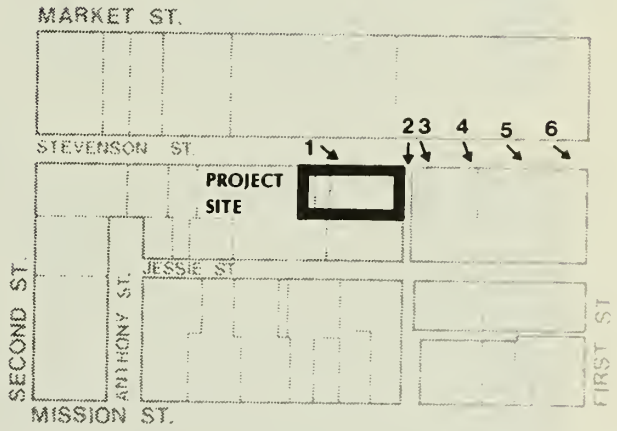

TISHMAN PLAZA PHOTOGRAPHS

SOURCE: EIP CORPORATION

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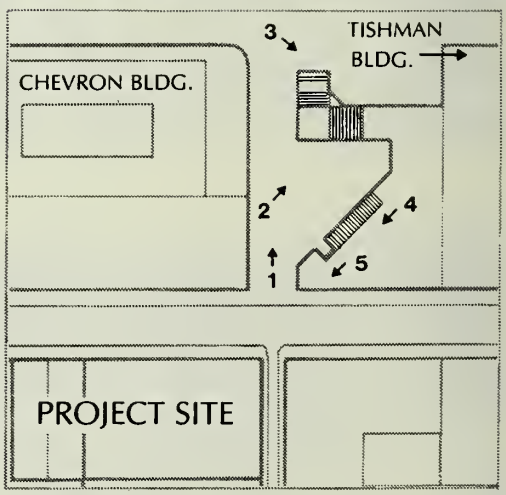

NOTE: PHOTOGRAPHS TAKEN ON A WEDNESDAY AT 4:00 PM.
(NOV. 23, 1983)

PROJECT AREA PHOTOGRAPH

SOURCE: EIP CORPORATION

VIEW EAST ALONG STEVENSON STREET TOWARD PROJECT SITE AND HIGHRISE STRUCTURES BEYOND.

BUILDING HEIGHTS IN STORIES

constructed up to the lot lines, maintaining a strong and continuous facade along the streets and alleys. The blocks surrounding the project site area constitute a visual transition zone between the scale of high-rise structures north of Market Street and older low-rise buildings south of Mission Street (see Figure 16, page 34. The high-rise office buildings fronting the south side of Market Street immediately north of the site establish a high skyline profile defining the southerly boundary of the Financial District. The high-rises generally are surfaced with metal, glass, light-colored stone and concrete, and are devoid of ornamentation; these structures contrast with the red brick, colored concrete, ornamentation and windows typically recessed into the walls of older, low-rise structures south of Market Street. High-rise buildings fronting Market Street are occasionally set back from lot lines; it is in these areas that pedestrian plazas containing decorative trees and shrubs have been constructed as noted above.

At the intersection of Ecker and Stevenson Streets adjacent to project site, views to the north across Tishman Plaza encompass high-rise structures which block views of buildings toward the center of the Financial District. Views to the west are largely confined to the alignment of Stevenson Street due to the buildings that front these streets. Views west are also terminated by buildings that front the west side of Second Street, which is aligned perpendicular to Stevenson Street. Views east encompass the skyline profile of recently completed high-rise buildings in the vicinity of Mission and Beale/Main Streets, which can be seen above the older, low-rise buildings of Stevenson Street (see Figure 15, page 33).

C. ARCHITECTURAL RESOURCES

The project site contains three turn-of-the-century brick buildings by unknown architects (49-55 Stevenson). The structure at 49 Stevenson was formerly a warehouse, now converted to commercial space; Yank Sing restaurant now occupies the building at 53 Stevenson; 55 Stevenson was originally constructed for a Varnish Works Company. Each of these three buildings is rated "C"[1] by the Foundation for San Francisco's Architectural Heritage (Heritage). 53 Stevenson is rated "1" in the architectural inventory compiled by the Department of City Planning; the other two buildings were not rated. None of the buildings on the project site are included in a list of architecturally and/or historically significant buildings adopted by City Planning Resolution 8600.

The four-story brick warehouse building at 49 Stevenson was constructed in 1909. The one-story building at 53 Stevenson was built in 1908 and has brick construction with skeletal facade treatment in the Renaissance/Baroque style, typical of the City's post-earthquake "Reconstruction" style of architecture. The four-story brick building at 55 Stevenson was built in 1910 and features timber framing clad in iron and a mansard roof with dormer windows. All three buildings would be demolished and replaced with the proposed project.

The block in which the proposed project is located contains a large percentage of "C" rated buildings with the exception of one "A" rated (of highest architectural and historical value to the City) and four "B" rated buildings (major importance for overall architectural quality). Figure 17, page 37, locates and identifies those buildings in the project area included in Splendid Survivors and on the Department of City Planning list of Architecturally and/or Historically Significant Buildings.

The "A" rated eight-story building is the Wells Fargo building located at 71-85 Second Street. This building, designed by Meyers and Ward, was originally built in 1902 and destroyed in the earthquake. Its reconstruction in 1907 implemented a steel-frame base clad in cinder concrete thought to be fire-proof construction after the earthquake. This building is also rated a "3", in the City's architectural inventory, compiled by the Department of City Planning.[2]

ARCHITECTURALLY/HISTORICALLY SIGNIFICANT BUILDINGS IN THE PROJECT AREA

BUILDING NO.

64 JESSIE ST. 1
71 STEVENSON ST. 2
CALIFORNIA FARMER BLDG. 83 STEVENSON ST. 3
WELLS FARGO BLDG. 71 SECOND ST. 4
GOLDEN GATE UNIVERSITY LAW LIBRARY 562 MISSION ST. 5
ONE ECKER 16 JESSIE ST. 6
549 MISSION ST. 7
SANTA FE BLDG. 601 MARKET ST. 8
HOFFMAN GRILL • 619 MARKET ST. 9
SCHWABACHER BLDG. 20 SECOND ST. 10
BLAKE, MOFFIT & TOWNE BLDG. 41 FIRST ST. 11
SHELDON BLDG. 9 FIRST ST. 12
TERMINAL PLAZA 440 MISSION ST. 13
TRANSBAY TERMINAL 14
CITY LANDMARK •
HERITAGE / DCP RATINGS A / 3

HERITAGE RATED BUILDING

"A" RATED
"B" RATED
"C" RATED

SOURCE: DCP, "ARCHITECTURALLY AND/OR HISTORICALLY SIGNIFICANT BUILDINGS IN THE DOWNTOWN", REVISED SEPTEMBER 29,1982

The three buildings rated "B" are described below:

- The Golden Gate University Law School Library at 572 Mission Street was built in 1919 and has Renaissance/Baroque ornamentation. As discussed in Splendid Survivors[3] this is an example of the "mushroom column drop" method of construction considered a breakthrough in reinforced concrete design. (Mushroom columns have widely flaring heads with horizontal rings of reinforcement to support the floor or roof slab).

- One Ecker at Jessie is a four-story brick warehouse built in 1906, renovated in 1972. Its construction represents one of a group of massive industrial buildings located in narrow mid-block alleys.

- 64 Jessie, built in 1924, is considered by Splendid Survivors to be a handsome reinforced concrete warehouse with skeletal articulation of the Jessie Street facade.

- The California Farmer Building at 83 Stevenson, originally a post office, was designed by Willis Polk. It is also rated a "1" by the DCP Inventory. Its Renaissance/Baroque ornamentation includes a iron eagle at the peak of its pedimented temple front.

A number of structures in the project area would be removed by proposed cumulative development. The recently approved 71 Stevenson project would require demolition of the five-story Hertzka warehouse (c. 1924) at 64 Jessie Street and a parking garage (c. 1923) at 71 Stevenson. Lincoln Plaza, a project currently under formal review, would require demolition of the six-story Danziel Building (c. 1907) at 560 Mission and the six-story D.N.&E. Walter Building (c. 1919) at 562 Mission. All of these structures represent typical industrial buildings that were constructed in the south of Market area between 1900 and 1925. The 57 Jessie Street diner (c. 1929), a prefabricated metal diner also located on the Lincoln Plaza site, would be donated to anyone who would remove it from the site. All of the structures proposed for demolition or removal are rated "C" by Heritage. A discussion of the cumulative impacts associated with the loss of these structures is found in Section IV.E., page 86 of this document. Development in the

downtown area has resulted in the total or partial demolition of 37 rated buildings between 1979 and 1982. See Appendix I, page A-87 for a complete listing of those buildings and a reproduction of pages 63 through 65 of the proposed Downtown Plan which discusses the construction, architecture and demolition of buildings in the downtown area.

The Downtown Plan proposes the creation of several conservation districts in order to preserve certain geographic areas of unique architectural quality. The project site is one-half block from the Plan's proposed New Montgomery-Second Street Conservation District.[4]

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[1]Buildings rated "C" by Heritage have contextual importance - "Buildings which are distinguished by their scale, materials, compositional treatment, cornice and other features. They provide the setting for more important buildings and they add visual richness and character to the downtown area."

[2]The Department of City Planning's rating system progresses from "5" to "1", with "1" being the least important in architectural or historic value.

[3]The Foundation for San Francisco's Architectural Heritage, Splendid Survivors, San Francisco, California Living Books, 1979.

[4]San Francisco Department of City Planning, The Downtown Plan, A Proposal for Citizen Review, August 1983, page 75.

D. TRANSPORTATION

The project site is served by a network of local streets (see Figure 18, page 41). In the project vicinity, Market and Howard Streets run southwesterly, linking the downtown with the outer Mission and southwest areas of the City. North of Market Street, Pine (one-way westbound) and Bush (one-way eastbound) Streets provide an important east-west traffic corridor through the City. Similarly, Sansome (one-way northbound) and Battery (one-way southbound) Streets comprise a major north-south traffic corridor, linking the downtown with the Embarcadero and northern waterfront areas. Major access routes to and from the I-80 downtown freeway include Main, Beale, Fremont, First, Third and Fourth Streets. All of the foregoing local streets have been designated "Primary Vehicular Streets" in the Transportation Element of the City's Comprehensive Plan.[1]

In the project vicinity, Sansome, Battery, Market, Mission and Second Streets are designated Transit Streets in the City's Comprehensive Plan.

Stevenson Street has a right-of-way width of 40 feet and a curb-to-curb width of 24 feet, carrying traffic one-way eastbound. With vehicles parked on both sides of Stevenson, the street is effectively one lane wide. Adjacent to the site, Ecker Street is ten feet wide (curb-to-curb) and is closed to vehicle traffic. Adjacent to the site, the Stevenson Street curb frontage includes a yellow loading zone approximately 50 feet long and a two-hour parking zone approximately 30 feet long. Curb parking (two-hour limit) along the south side of Stevenson Street is essentially occupied from 8 a.m. to 5 p.m. Additional vehicles park illegally on the north sidewalk along Stevenson.

Regional access to and from the Peninsula and East Bay is available via I-80 freeway ramps at Mission/Main, Mission/Beale, Fremont between Howard and Folsom and along Harrison and Bryant Streets at Fremont, First, Third and Fourth Streets. Access to and from the North Bay is less well defined, with surface street connections to either the Embarcadero or Van Ness corridors.

The project site is within a one-fourth mile (two to three block) walking distance of 33 Muni bus and trolley lines plus the five Muni Metro LRV lines (via the Montgomery Street Station). Within one block of the site bus service is available (lines 15, 27 and 42) to the Southern Pacific Depot. Existing and projected Muni ridership and load factors are discussed in Section IV.F., page 99.

STREET NETWORK AND TRANSIT SERVICE

BART AND MUNI METRO STATION

BART ROUTE

MUNI METRO SUBWAY

MUNI TRANSIT ROUTE

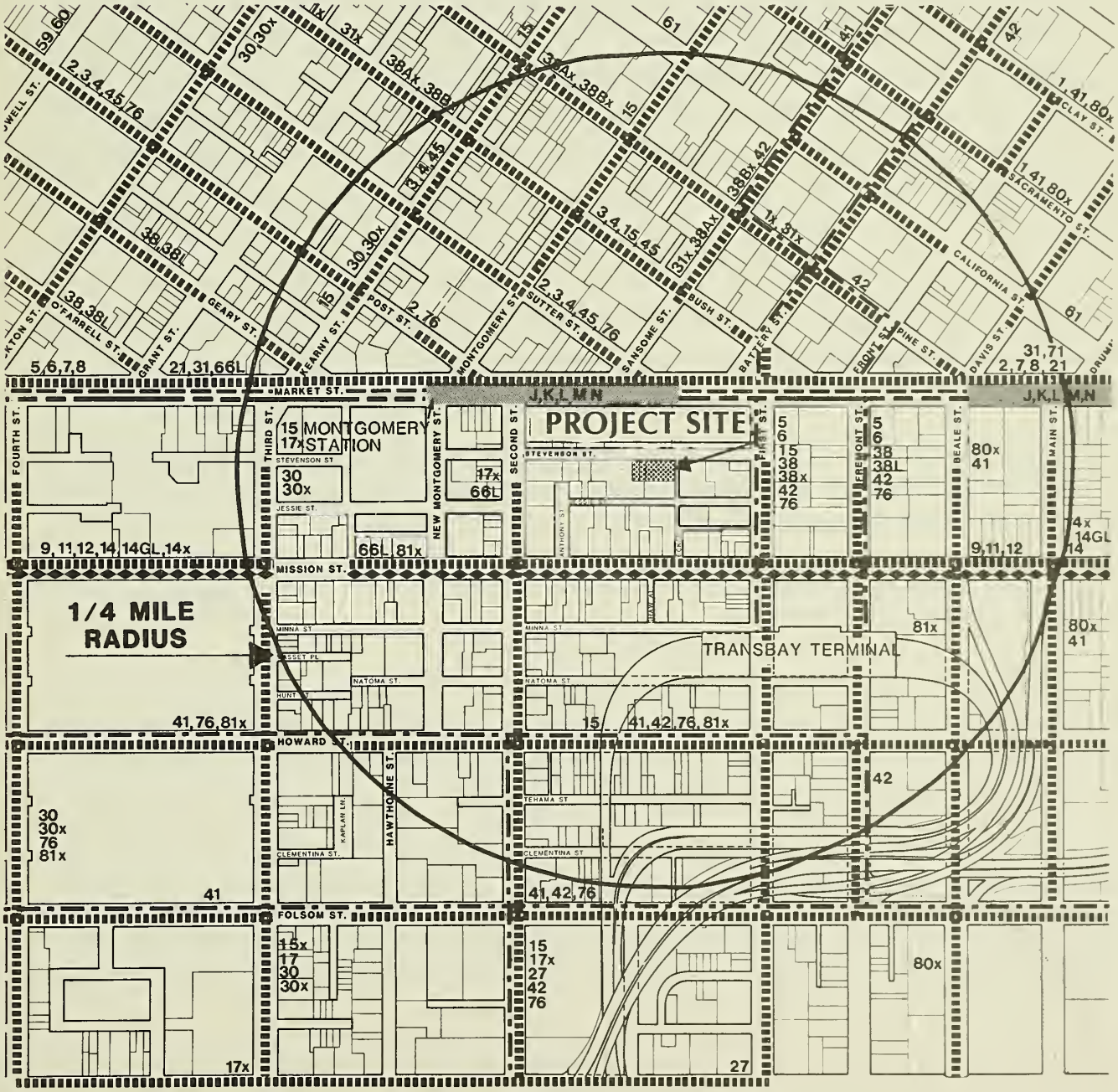
ROUTE DESIGNATION 15,17x,J

GOLDEN GATE TRANSIT

SAM TRANS

SOURCE: EIP CORPORATION, MUNI INTERIM MAP, JANUARY, 1982

SCALE 0 100 200 400 FEET



The project site is also within walking distance of regional transit serving the East Bay, North Bay and Peninsula. East Bay service is available via BART's Montgomery Street station and AC Transit buses at the Transbay Terminal. North Bay access on Golden Gate Transit is also available at the Transbay Terminal (buses) and the Ferry Building (ferry service). Service to and from the Peninsula relies upon SamTrans buses (with stops along Mission Street) or BART service to the Daly City Station. As stated in the discussion of Muni services, Southern Pacific service is available via a longer (six block) walk or a transfer from Muni lines.

Adjacent to the project site, Stevenson Street's sidewalk width is eight feet with an effective width of about 6.5 feet. On Ecker Street the entire width (fifteen feet) is available for pedestrians.[2] Ecker Street has been identified in the City's Comprehensive Plan and the proposed Downtown Plan as an exclusive pedestrian walkway. The Board of Supervisors has approved a rebuilding of Ecker Street to include decorative paving bricks without curbs.[3]

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[1]San Francisco Department of City Planning, Transportation Element, adopted by Resolution 6834 of the San Francisco City Planning Commission on April 27, 1983.

[2]Ecker Street is a pedestrian mall between 11:30 a.m. and 1:30 p.m. per Board of Supervisors Resolution 104-81 and has been identified in the Downtown Plan as an exclusive pedestrian walkway.

[3]David Feltham, Transportation Planner, Department of City Planning, telephone conversation January 4, 1984.

E. AIR QUALITY AND CLIMATE

1. Air Quality

San Francisco's air quality, in general, is among the least degraded of all the developed portions of the Bay Area. Because of the prevailing westerly and northwesterly winds, San Francisco is more a generator of its own air quality problems (especially carbon monoxide (CO) and total suspended particulates (TSP) and a contributor to those in other parts of the Bay Area (especially ozone), than a recipient of pollutants from elsewhere. This is because CO and TSP concentrations tend to reflect local emission sources; that is, concentrations are highest at the source and decrease rapidly as the pollutants are dispersed by wind. In contrast, ozone is not directly emitted but is a secondary pollutant formed in the atmosphere by a complex series of photochemical reactions involving reactive hydrocarbons and nitrogen oxides. Ozone air pollution is thus a regional phenomenon because the precursor pollutants are carried downwind as the photochemical reaction occurs.

The Bay Area Air Quality Management District (BAAQMD) operates an air quality monitoring station about two miles south of the site at 900 23rd Street. A five-year summary of the data collected and the corresponding ambient air quality standards are shown in Appendix G, page A-79. These data show occasional excesses of the CO and TSP standards. In 1983 there was one exceedence of the state one-hour average ozone standard and also four exceedences of the state 24-hour average TSP standard. In 1982, the eight-hour standard for CO was exceeded once and the 24-hour TSP standard exceeded three times. The one-hour CO standard was never exceeded. (A more stringent one-hour CO standard went into effect January 15, 1983.) The only air pollutant to exceed standards in 1980 and 1981 was TSP; the 24-hour standard was exceeded six times in 1980 and once in 1981.

A special monitoring program, called a Hotspot program, was conducted at 100 Harrison Street during the winter of 1980-81, approximately two-thirds of a mile southeast of the proposed project. The observed high eight-hour average concentration was 7.8 parts per million (ppm), which is 1.2 ppm less than the applicable air quality standard of 9 ppm.[1] The highest 1-hour average concentration was 13 ppm, which is 7 ppm lower than the applicable state standard. In 1982, a street level average CO maximum of 14.5 ppm was measured at the street level monitoring station at 939 Ellis Street near Van Ness Avenue about a mile and one-half west-northwest of the proposed project. This data indicates

that some locations in San Francisco, particularly those near high traffic volumes and congested traffic flow, may experience violations of CO standards under adverse meteorological conditions.

Highest annual pollutant concentrations in San Francisco, while exhibiting fluctuations due to variations in meteorology, have shown an overall improvement during the 1971-1982 period. No similar trend in the annual number of violations of standards is evident, although such occurrences are infrequent (six a year or fewer).

In 1979, emissions from motor vehicles were the source of 94% of the CO, 36% of the hydrocarbons (HC) 7% of the TSP, and 44% of the nitrogen oxides (NO_X) in San Francisco, while power plant fuel combustion was the largest single source of sulfur oxides, about 33% of the total. These percentages are expected to apply reasonably well to current conditions.[2]

The nine-county San Francisco Bay Area air basin is designated by the California Air Resources Board (CARB) as a nonattainment area for O_3, CO and TSP. (Nonattainment means the federal ambient air quality standards for these pollutants have been violated within the past two to three years.) As required by the Federal Clean Air Act Amendments of 1977, a regional Air Quality Plan has been adopted for the Bay Area that establishes control strategies to attain federal and state standards by 1987.[3] Air quality control strategies include stationary and mobile source emission controls and transportation improvements to be implemented by the Bay Area Air Quality Management District (BAAQMD), Metropolitan Transportation Commission (MTC), and the CARB.

2. Climate

The climate of San Francisco is dominated by the sea breezes characteristic of marine climates and there are few extremes of heat and cold. The warmest month is September, with an average daily maximum of 69 degrees; the coldest is January, with an average daily maximum of 56 degrees. The prevailing wind direction in San Francisco is westerly. Southwesterly and northwesterly winds are also frequent.

Wind tunnel tests (see Appendix C, page A-29) conducted for the project site indicated wind speeds along streets near the site average from two to six miles per hour (mph) on summer afternoons (the windiest time of the year on the average). The highest average

windspeeds were found at the Chevron and Tishman Plazas. At no point was the average windspeed found to exceed the comfort criterion of 11 mph.

3. Shadow Patterns

Shadows from existing buildings in the project area extend across sidewalks on Stevenson, Ecker and Jessie Streets for much of the year. At midday on summer, spring and fall solstices, the shadows are shorter and portions of these nearby sidewalks are in the sun. Existing shadows on the Tishman Plaza and the Chevron Garden Plaza are primarily caused by 80- to 500-foot-tall buildings to the east and west of the plazas. The approved 324-foot-tall 71 Stevenson building, if constructed, would cast additional shadows on the Chevron Garden Plaza in the morning and the Tishman Plaza at noontime, in summer, spring and fall.

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[1] Association of Bay Area Governments, AQMP Tech Memo 40, "Results of the 1980/1981 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California, January 1982.

[2] Bay Area Air Quality Management District, Base Year 1979 Emissions Inventory, Summary Report (Revised), San Francisco, California, July 1, 1982.

[3] Association of Bay Area Governments (ABAG), BAAQMD and MTC, 1982 Bay Area Air Quality Plan, Berkeley, California, December 1982.

F. CONSTRUCTION NOISE

The impact of construction and operation noise on the uses inside adjacent buildings is dependent on the amount that sound is reduced going from outside to inside. An open window would reduce noise levels by about 15 dBA,[1] while fixed windows would reduce noise levels by about 30 dBA. Both the 22-story Chevron building, approximately 50 feet from the site, and the Tishman Building, approximately 100 feet from the site, have fixed windows. Adjacent to the site across Ecker Street are a restaurant and the Golden Gate University Bookstore and offices, both of which appear to rely on operable windows for ventilation. Behind the site on the corner of Jessie and Ecker Streets are two structures with fixed glazing: the new Ecker Square building and Golden Gate University. Immediately south of the site is the three-story Swallow Printing building and a parking structure, 71 Stevenson, which wraps around the site to the west side and is the site of a proposed new 23-story office building. The nearest hotel or residential uses are about 750 feet from the site at the Sheraton-Palace Hotel.

To quantify the noise environment in the vicinity of the project site, noise measurements were made at the three locations. The results of the noise measurements are shown in Table 3, page 47. The sound levels are typical of those found in downtown San Francisco. The major noise sources in the area are trucks operating on Stevenson Street. Based on the measurements, the day/night average noise level in the vicinity of the project would be 65-70 dBA.

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[1] Decibel (dB) A logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a force known as sound pressure level (commonly called "sound level"), measured in decibels.

dBA Decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels.

A complete discussion of fundamental concepts of environmental noise is found in Appendix D, page A-57.

TABLE 3

NOISE MEASUREMENTS

	Location	Day and Time of Measurement	L_1[1]	L_{10}	L_{50}	L_{90}	L_{eq}[2]	Noise Sources
1.	On north side of Stevenson Street opposite Vince's Beef House on sidewalk	5/27/83 Friday 3:15 - 3:30 p.m.	77	69	63	61	67	Cars and trucks on Stevenson Street; siren, garage warning bell; distant traffic.
1.	" "	5/27/83 Friday 4:43 - 4:58 p.m.	72	67	62	59	64	Same, although fewer trucks on Stevenson Street.
2.	On east sidewalk of Ecker St. 50 feet south of Stevenson St.; in front of Golden Gate University Book Store Bldg.	5/27/83 Friday 3:33 - 3:48 p.m.	77	69	65	63	67	Traffic on Stevenson St.; garage warning bell; pedestrian traffic; distant traffic
2.	" "	5/27/83 Friday 4:26 - 4:41 p.m.	74	67	64	63	66	Same
3.	On second floor balcony of Golden Gate University overlooking Jessie St.	5/27/83 Friday 3:50 - 4:05 p.m.	72	66	63	62	64	Cars on Jessie St.; distant traffic
3.	" "	5/27/83 Friday 4:09 - 4:22 p.m.	68	64	62	61	63	" "

[1]The sound level in dBA that was equalled or exceeded 1 percent of the time; L_{10}, L_{50}, and L_{90} are the levels equaled or exceeded 10, 50 and 90 percent of the time, respectively.

[2]The L_{eq} is the equivalent steady-state sound level that, in a stated period of time, would contain the same acoustic energy as the varying sound level during the same time period.

Source: Charles M. Salter Associates, Inc.

G. ENERGY

Pacific Gas and Electric Company supplies energy to San Francisco customers. Electrical energy is generated from various sources of energy including oil, gas, hydroelectric, geothermal, nuclear, wind, cogeneration and solid waste.[1] In future years PG&E expects to generate electricity from these sources and from coal. The proportion of energy generated from oil and gas is expected to decrease by 1990 with corresponding increases in the proportion of energy generated from the other sources listed above.[2]

Energy is currently used on-site in two four-story office buildings with ground floor retail, and a one-story building occupied by a restaurant. From October 1982 through September 1983 the total amount of energy consumed at the project site was 8,200 kilowatt hours (kwh) of electricity and 9,100 therms of natural gas.[3]

The Comprehensive Plan of the City and County of San Francisco includes an Energy Element[4] which summarizes energy use in the city during 1979-1980 and states a number of objectives and policies regarding energy consumption. Several objectives and policies in the Element apply to the proposed project.

> Objective 3: "Promote effective energy management practices to maintain the economic vitality of commerce and industry."[5]
>
> Objective 3, Policy 4: "Promote commercial office building design appropriate for local climate conditions."[6]
>
> Objective 3, Policy 5: "Encourage the use of integrated energy systems to save energy and reduce operating costs."[7]

Together, these policies and objectives are oriented towards the goal of improved energy efficiency in the design and operation of buildings and transit facilities. For new office building projects this suggests the use of careful energy design, ongoing energy management programs during building operation, and support of energy-efficient transportation for project generated traffic.

The project would incorporate energy management practices both in design and operating features. These are discussed in Section V., Mitigation Measures, page 137.

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[1]Pacific Gas and Electric Company, 1981 Annual Report, San Francisco, California, 1982.

[2]Pacific Gas and Electric Company, 1980 Annual Report, San Francisco, California, 1981.

[3]Abdur-raheem Aleem, Customer Service, Pacific Gas and Electric, telephone conversation, November 23, 1983.

[4]San Francisco Department of City Planning, Energy Element, adopted by the City Planning Commission, Resolution 9409, June 3, 1982.

[5]Ibid., page 12.

[6]Ibid., page 13.

[7]Ibid., page 14.

H. GEOLOGY AND SEISMICITY

The project site is at elevation +7 feet (San Francisco Datum).[1] There is a slight downward slope to the northeast along Stevenson Street, creating a difference in elevation of about two and one-half feet. General slope down along Stevenson Street is less than one and one-half percent.

The preliminary soils investigation completed for the site indicates 10 feet of unengineered fill overlying 24 feet of clean, wind-blown sand. The sand rests on 8 feet of soft, compressible Upper Bay mud which in turn overlies about 35 feet of dense, slightly clayey sand and medium dense sand. This lower sand is underlain by the Lower Bay clays which are less susceptible to consolidation than the Upper Bay mud. The Lower Bay clays together with interlayered and underlying sands extend about 140 feet to the Franciscan bedrock surface at about elevation -210 SFD.[2,3]

There are no known active faults on the proposed project site or within the City of San Francisco. There are four major fault zones in the San Francisco Bay Area capable of causing strong ground motion at the proposed project site.[4] The San Andreas and Seal Cove Faults are located off the Pacific shore approximately 9 miles and 14 miles, respectively, from the project site. The Hayward and Calaveras Faults are approximately 13 and 23 miles east of the site. Each of these systems is considered active and is capable of generating a major earthquake (greater than magnitude 7.0 on the Richter scale)[5] during the projected useful lifetime of the structure at this site (at least 50 years).[6]

Potential earthquake-induced groundshaking at the site would be "strong" in a 1906-type earthquake.[7] The site is subject to earthquake-induced liquefaction and subsidence.[8,9] These conditions would be expected to occur in the medium dense sands and artificial fill located beneath the site.

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[1]The San Francisco Datum is approximately 8.6 feet above mean sea level.

[2]Franciscan Rocks are typical of the northern California Coast Ranges and underlie the hills of San Francisco. They consist of a mixture of dark muddy sediments, red, green and brown cherts and lava flows of black basalt, all material laid down on the floor of the Pacific Ocean about 100 million years ago. Cherts are rocks formed by deposits of silica containing microorganisms, which are transformed into hard, waxy or porcelain-

like rocks. See David D. Alt and Donald H. Hyndman, Roadside Geology of Northern California (Mountain Press, Missoula, Montana, 1975.) Also known as Franciscan Formation or Franciscan Assemblage.

[3]J.E. Rauber (C.E. 35331) and R.W. Rudolph (C.E. 32136), Preliminary Soil Study, 49 Stevenson Street project, San Francisco, California, Harding Lawson Associates, Engineers, Geologists & Geophysicists, April 29, 1983, 9 pages plus 1 plate.

[4]California Division of Mines and Geology; Fault Map of California, Data Map Series No. 1, 1975, scale 1:750,000.

[5]Richter scale: a logarithmic scale developed in 1935 by Charles Richter to measure earthquake magnitude by the energy released, as opposed to earthquake intensity as determined by effects on people, structures and earth materials.

[6]R. W. Greensfelder, Maximum Credible Rock Accelerations from Earthquakes in California, California Division of Mines and Geology Map Sheet 23, 1974, scale 1:2,500,000.

[7]URS/John A. Blume and Associates, San Francisco Seismic Safety Investigation, San Francisco, California, June 1974, page 6.

[8]Liquefaction: Earthquake-induced transformation of stable granular material, such as sand, into a fluidlike state, similar to quicksand.

[9]Subsidence: An uneven local settlement of the ground's surface. Although it can occur under static (normal) conditions, it is frequently activated by strong ground motion, such as that from a major earthquake.

I. EMPLOYMENT, HOUSING AND FISCAL FACTORS

1. Employment

The project site presently contains 12,700 square feet of retail space and 32,700 square feet of office space. These uses generate about 171 full-time on-site jobs, including 131 office jobs, 36 restaurant jobs, and four custodial jobs.[1] The site is located in the area south of Market Street adjacent to the Financial District of San Francisco. Office employment now represents more than half of all Bay Area jobs, and accounted for 60% of Bay Area and City employment growth during the 1970s.[2]

Between 1980 and 1983 the vacancy rate for office space in the downtown increased from 0.1% to about 5.8%.[3] The citywide office vacancy rate was 3.69% in July 1982.[4] Between 1976 and 1980 the citywide office vacancy rate fell dramatically, so the 1980-83 trend represents a change in the market.[4] This change may be a result of the nationwide recession that has restricted demand; it also reflects the additional supply of space constructed in recent years.

2. Existing and Proposed Office Space in San Francisco

San Francisco is the major office center in the Bay Area, with approximately 60.6 million gross square feet of office space at the end of 1982.[5] The C-3 district had 55.3 million square feet of office space in 1981 and currently has about 62.1 million square feet of office space in 1984.[6] Historical data indicates that office space was added at average rates of 1.5 million square feet per year during the 1970s and 2.4 million square feet per year from 1980 through 1982.[5]

The projects under review, approved or under construction as of March 10, 1984 include projects in the greater downtown area outside of the C-3 District (see Appendix E, page A-61 of this report). An additional 5.5 million gross square feet of net new office space will be added when the buildings under construction are finished, and another 4.8 million square feet of net new office space has been approved but is not yet under construction. Another 8.7 million square feet would be added if the projects under formal review, as of March 10, 1984, were eventually built. This total of about 19.0 million gross square feet of net new office space (under formal review, approved, or under construction as of March 10, 1984) includes the 49 Stevenson project, listed as adding about 136,900 gross square feet of net new office space. "Net" includes additional space, subtracting existing space on sites being developed or proposed for development.

Office space projections in the Downtown Plan Draft EIR indicate the C-3 District would contain approximately 70.5 million gross square feet of office space by 1990, and 78.9

million gross square feet of office space by 2000.[7] Alternatives analyzed for the Downtown Plan DEIR indicated a range of 77.5 million to 86.5 million gross square feet of total office space in the C-3 District by 2000.[8] Forecasts in the Downtown Plan DEIR indicate net increases of office space in the downtown of approximately 1.4 million square feet per year between 1984 and 1990.[7]

3. Housing Supply

According to the 1980 census, there are about 316,000 housing units in San Francisco. About two-thirds of the stock is rented and one-third is owner-occupied.[9] Housing production in the City (as measured by building permits issued) has been predominantly multi-family housing. Between 1978 and 1980, 84% to 87% of residential building permits were for multi-family housing and in 1981 that figure increased to 95%.[10]

The nature of the multi-family housing stock (including townhouses, condominiums and apartments) in the City is changing because of conversion of rental units to condominiums and conversion of residential hotels to other uses. Under the Subdivision Code as revised in 1982, the City allows conversion of 200 units of rental housing to condominiums per year. In 1981, about 40% of rental units converted to condominiums were estimated to be owner-occupied.[11] It is further estimated that from 1975 to 1980, approximately 3,700 residential hotel units were demolished or converted to commercial or tourist uses.[12] The demolition and conversion of residential hotel units are regulated by Chapter 41 of the San Francisco Administrative Code, as amended.

Several factors indicate that housing demand in San Francisco has heightened over the past decade. The number of households increased by 1.3% from 1970 to 1980 despite a 5.6% decrease in total population. This reflects a decrease in the size of households in San Francisco from 2.34 persons to 2.19 persons, which is a trend typical of many areas during this time.[13] Although the number of housing units in the City increased by 1.9% over this period, by 1980 the vacancy rate, which indicates the balance between housing supply and demand, remained low at 0.56% for owner-occupied housing and 2.68% for rental housing.[14]

The average market value of a single-family house in the Bay Area was about $143,000 in 1983; the 1983 average in San Francisco was about $156,000. San Francisco experienced the greatest[15] increase in average market value of all Bay Area cities over the past five years. In 1980 the median contract rent was $267[16], which in 1983 dollars would amount to more than $375.

The percentage of San Francisco's employed population that works in the City has decreased from more than 80% in 1970 to 75% in 1980. This suggests that fewer people who work in the City also are living here. However, the number of San Francisco residents working in the Financial, Insurance and Real Estate (FIRE) sector increased during this period (1970 to 1980) by more than 6,000. This represents about one-third of the total increase in employment in the City FIRE occupations.[17] The Department of City Planning projects that as many as 40% of office workers would desire to live in San Francisco if they work in the City.

The expansion of downtown office space is a source of pressure on San Francisco's housing demand, together with the above-noted decrease in household size; increased land, labor and materials costs; immigration from abroad; high interest rates; and limited land for housing. There are also regional housing impacts. There were just over two million housing units in the nine-county Bay Area in 1980. About one-third of the units are in the East Bay (Alameda and Contra Costa counties), about one-third on the Peninsula (San Mateo and Santa Clara counties), about 16% in San Francisco, 10% in the North Bay (Marin and Sonoma counties) and 6% in Solano and Napa counties.[18]

The limited information available on housing production in the Bay Area counties suggests that the markets have been depressed in recent years. Regionally, single-family permits declined in 1979, 1980 and 1981. Alameda, Contra Costa, San Francisco, San Mateo and Sonoma county single-family permit issuances rose from 1978 to 1979, but then declined in 1980. Regional multi-family rental unit permits have declined every year between 1977 and 1981. Conversely, condominium permits increased between 1977 and 1980 and decreased in 1981.[19] The housing recovery trend in the Bay Area during the fourth quarter of 1983 showed a gain of 99% over the level reported during the fourth quarter of 1982 for total permits issued.[20]

4. Fiscal

Existing uses on the project site generate revenues from property tax, business tax, utility user's tax, and sales tax. These revenues are summarized in Table 4, page 55.

Assessed Valuation and Property Tax. The current assessed value of the project site (Block 3708, Lots 38, 39 and 40) is $879,288. At the 1982-83 tax rate of $1.17 per 1% of assessed value, the site generates approximately $10,300 in property tax revenues.[21] About $8,800 of this amount accrues to the City and County of San Francisco.

Business Tax. The business tax is actually comprised of two taxes: gross receipts tax and payroll tax.[22] Revenues from these taxes are generated by tenant businesses occupying

the project site and by owners of the project who pay a tax on the rental income they receive. Business tax revenues have been estimated at $487,000 for every million square feet of office space.[23] Therefore, annual business tax revenue from the office space on-site would be about $15,900 (in 1983 dollars). Based on an estimate of $200/square foot/annum for restaurant gross receipts, it is estimated that the restaurants on the project site pay about $7,600/annum total in business taxes.[24] The total business tax receipts from office and retail uses is approximately $23,500.

TABLE 4

TAX REVENUES GENERATED BY EXISTING USES ON THE PROJECT SITE FOR THE CITY AND COUNTY OF SAN FRANCISCO

Tax		Estimated Amount of Revenue
Property Tax		$ 8,800
Business Tax		$23,500
Utility User's Tax		
Electricity	1,840	
Natural Gas	475	
Telephone	2,290	
Water/Sewer	95	
	$4,700	$ 4,700
Sales Tax		$36,000
	Total Revenues	$73,000

Source: EIP

Note: See text for description of revenues. Numbers are rounded.

Utility User's Tax. Utility user's tax revenues are paid on the cost of electricity, gas, water and telephone use.

Electricity[25]
489,700 kwh/year x $.075/kwh x $.05 tax = $1,840

Gas
16,650 therms x $.5665/therm x $.05 tax = $475

Water
(119,000 cubic feet water/year x $0.00414/cubic foot) plus
(119,000 cubic feet sewage/year x $.0115/cubic foot) x $.05 tax = $95

Telephone
32,700 square feet x $1.40 square foot x $.05 tax = $2,290

The total utility user's tax is estimated to be about $4,700 annually.

Sales Tax. Based on employee-generated local taxable purchases of $1,287/annum x 1% (San Francisco portion of 6.5%) tax = $2,200. The restaurants on the project site are estimated to generate an additional $33,800 for a total of $36,000 in sales tax to the City.[26]

Sales tax revenues generated by the one-half percent BART sales tax are about $18,000. Of this total, BART receives approximately $13,500 directly and the remaining $4,500 is distributed by the Metropolitan Transportation Commission among BART, Muni and AC Transit.

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[1] Areas per City Assessor's records and field check. Employment estimates based on one office job per 250 square feet of office space, one restaurant job per 350 square feet of restaurant area, and one custodial job per 12,000 square feet of total area.

[2] Association of Bay Area Governments (ABAG) and the Bay Area Council, San Francisco Bay Area Economic Profile, December 1979, pages 37-48.

[3] 1980 vacancy rate reported in 201 Spear Street Office Building FEIR, certified May 20, 1982. 1983 Vacancy rate obtained from Coldwell Banker, Downtown San Francisco Office Market Overview, First Quarter 1983. The Coldwell Banker data (for both 1980 and 1983 provides downtown office building vacancy rates only.

[4] BOMA of San Francisco, The BOMA Newsletter, July 8, 1982. This source provides citywide office vacancy rates.

[5] San Francisco Department of City Planning, Major Office Building Construction in San Francisco Through 1982, March 15, 1983.

[6] San Francisco Department of City Planning, Downtown Plan DEIR, EE.81.3, March 16, 1984, pages IV.B.2 and IV.B.17.

[7] Downtown Plan DEIR, pages IV.B.28 and IV.B.31.

[8] Downtown Plan DEIR, Appendices, pages G.37-G.41.

[9] U.S. Bureau of the Census, 1980 Census Information, File STF 1-A, Report #4, March 1982, Tables 25 and 26.

[10] ABAG, San Francisco Bay Area Housing Activity Report, No. 4, May 1982, page 21.

[11] San Francisco Department of City Planning, Condominium Research, Preliminary Progress Report, December 1981.

[12] San Francisco Department of City Planning, A Study of the Conversion and Demolition of Residential Hotel Units, December 1980, page 17.

[13]San Francisco Department of City Planning, Residence, A Proposal for Citizen Review, June 1982, Table 4.

[14]U.S. Bureau of the Census, op.cit. 1980 Census Information, File STF 1-A, Report #4, March 1982.

[15]Data Provided in Northern California Real Estate Report, Volume 34, Number 3, Real Estate Research Council of Northern California, update per telephone conversation with James Davis, Executive Director, February 24, 1984.

[16]City and County of San Francisco, 1980 Census Information, File STF1-A, Report #4-Housing, Table 44, March 1982. Escalation to 1982 dollars based on a 15.4% increase in the Consumer Price Index."

[17]U.S. Bureau of the Census, Population Census 1970 and 1980, and County Business Patterns 1970 and 1980.

[18]Real Estate Research Council of Northern California, Northern California Real Estate Report, Vol. 33, No. 1, April 1981. Updated to October 1982 per James Davis, Executive Director, telephone conversation, December 28, 1982.

[19]ABAG, San Francisco Bay Area Housing Activity Report, No. 4, May 1982.

[20]Real Estate Research Council of Northern California, Real Estate and Mortgage Finance Trends, No. 154, March 1, 1984.

[21]Of the total tax, $8,790 represents the maximum allowable under Proposition 13 for general governmental expenditures, and $1,500 was levied to finance bond obligations previously approved by the electorate (1% plus 0.17% of assessed valuation).

[22]San Francisco businesses with over $250,000-$500,000 in gross receipts (depending on which of the 15 classifications includes their firm) or over $45,450 in reported taxable payroll pay either of two taxes. The gross receipts tax is calculated by applying the rate specific to a firm's business classification to the firm's gross receipts; rates range from one dollar per $1,000 to two dollars per $1,000. The payroll tax is calculated by applying a rate of 1.1% to a firm's reported taxable payroll. Each firm is supposed to calculate its tax based on both methods and pay the larger amount of the two.

[23]Gruen Gruen + Associates, Fiscal Impacts of New Downtown High-Rises on the City and County of San Francisco, San Francisco, March 1981, page 116, and Arthur Anderson and Co., Downtown High-Rise District Cost-Revenue Analysis, November 1980, pages 35 to 38. These estimates were based on actual tax collections by the City for the C-3-0 district.

[24]The gross rental receipts tax rate is $1.50 per $1000 gross receipts.

[25]The 1983 commercial rate (G-50) for natural gas and elctricity per telephone communications with Nancy Ebling, Customer Representative, Pacific Gas & Electric Co., January 27, 1983. Energy demand estimated at 5.57 million BTU/year, 80% for electricity and 70% natural gas.

[26]Estimated taxable sales per employee based on 101 Montgomery FEIR, EE 80.26, certified May 7, 1981, page 83. Based on application of the 1% San Francisco share to an income generation of $200/square foot/annum for restaurants.

IV. ENVIRONMENTAL IMPACTS

A. ISSUES NOT ADDRESSED

An Initial Study was prepared for the 49 Stevenson project to identify potential environmental issues resulting from the proposed project; these issues are covered in this EIR. Certain potential environmental issues were determined to be insignificant and are therefore not addressed in this EIR, including operational noise, odors or burning of materials, utilities and public services (except for fire protection services), biology, surface water, health hazards, archaeological resources and project-related air quality impacts. A copy of the Final Initial Study is attached to this report as Appendix A, page A-1.

Not all issues covered in the EIR are physical environmental impacts as defined under the California Environmental Quality Act (CEQA). They are provided for informational purposes only.

B. LAND USE AND ZONING

The proposed project would increase the intensity of uses on the site. The project would be a mixed-use development incorporating ground and second floor commercial space, with offices above, for a total gross floor area of approximately 193,800 gross square feet (including the utility basement and mechanical penthouse).[1]

Implementation of the proposed 49 Stevenson project would require demolition of three existing buildings on the site with a total of approximately 32,700 gross square feet of existing office space and 12,700 gross square feet of existing retail space. The project would provide approximately 169,600 gross square feet of new office space and 9,800 gross square feet of new retail space. Deducting existing uses on-site, the proposed project would provide approximately 136,900 gross square feet of net new office space and 2,900 less gross square feet of retail space than currently exists.

Existing businesses would be relocated to the new structure to the extent possible. The Yank Sing and Eckers Restaurants have agreed to relocate within the proposed project. It is unknown at this time whether the other existing tenants would occupy space within the new structure.

The proposed new structure would be 253 feet high (excluding the mechanical penthouse) and cover approximately 12,000 square feet of the site. This building would conform to existing height and bulk limitations for the site.

The site's basic FAR of 14:1 would allow development of up to 179,760 gross square feet on the 12,840-foot site. The project would contain a gross floor area of about 179,400 square feet for an overall effective FAR of 14:1. The project would conform to the allowable FAR for the project site.

The project would contribute cumulatively to new and proposed office development occurring in the South of Market area in general and in the immediate vicinity in particular, as discussed in Section III.A., pages 19 through 22. In conjunction with other developments proposed or under construction within a one-block radius of the site (see Table 2, page 21), the existing setting of office, retail or parking uses in low-rise converted warehouse-type buildings would be replaced with new high-rise office buildings.

Several objectives and policies in the Commerce and Industry Element of the Comprehensive Plan of San Francisco[2] apply to the proposed project and area discussed in Section III.A., Land Use and Zoning Setting, pages 23 through 27. The project's relationship to the planning provisions of the Downtown Plan[3] is summarized in Table 5, pages 68 through 73 of Section IV.C., Urban Design and Visual Quality Impacts.

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[1]Gross Floor Area as defined in the City and County of San Francisco, Planning Code, Section 102.8.

[2]San Francisco Department of City Planning, Commerce and Industry Element Policies and Objectives, adopted by the City Planning Commission, Resolution 8001, June 29, 1978.

[3]San Francisco Department of City Planning, The Downtown Plan, A Proposal for Citizen Review, August 1983.

C. URBAN DESIGN AND VISUAL QUALITY

1. Urban Design Plan

The Urban Design Plan,[1] an element of the San Francisco Comprehensive Plan is meant to serve as a guide to new development, so that the physical environment is not abruptly or severely disrupted. For urban design and visual quality analysis, there are a number of policies contained in the Urban Design Plan that would relate to the project area and the proposed building.[1]

> Conservation Policy 6: "Respect the character of older development nearby in the design of new buildings."[2]

> Major New Development Policy 1: "Promote harmony in the visual relationships and transitions between newer and older buildings."[3]

The proposed project would rise 20 stories (253 feet) above the surrounding grade. The building would be similar to new construction in the area which is characteristically typified by the uniform placement of spandrels[4] and columns of equal dimension. However, it is the intent of the project architects to design a building that respects the architectural design and detailing of new and older structures within the project area. The building would contain clear glass, as do most one- to four-story structures in the area, in lieu of tinted or colored glass. A three-story base, as defined by spandrel size, window shape and building surface ornamentation (see Figure 2, page 10), would be constructed on which the main vertical portion (shaft) of the building would be situated. The base would respect the two-story colonnade of the 71 Stevenson Street building[5] along Stevenson Street and four-story height of the One Ecker building. From the fifth floor level, floors of the structure would be progressively stepped inward from the Ecker and Stevenson Street building faces toward the 71 Stevenson Street building, providing a gradual transition in building height between the One Ecker Building and 71 Stevenson Street Building. A two-story arcade along Stevenson Street would continue the arcade established by the 71 Stevenson building. The arcade columns would continue up along the face of the building base and to the roofline of the structure's upper stories. Visually, the spandrels would be subordinate to the vertical columns. The spandrels and columns would be pre-cast concrete, would be a light-buff color avoiding contrast and, in the architects' opinion, would compliment the red brick color of older structures in the area representing a blend of old and new construction, as called for by Conservation Policy 6 and Major New Development Policy 1.

Major New Development Policy 5: "Relate the height of building to important attributes of the City pattern and to the height and character of existing development."[3]

Major New Development Policy 6: "Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction."[6]

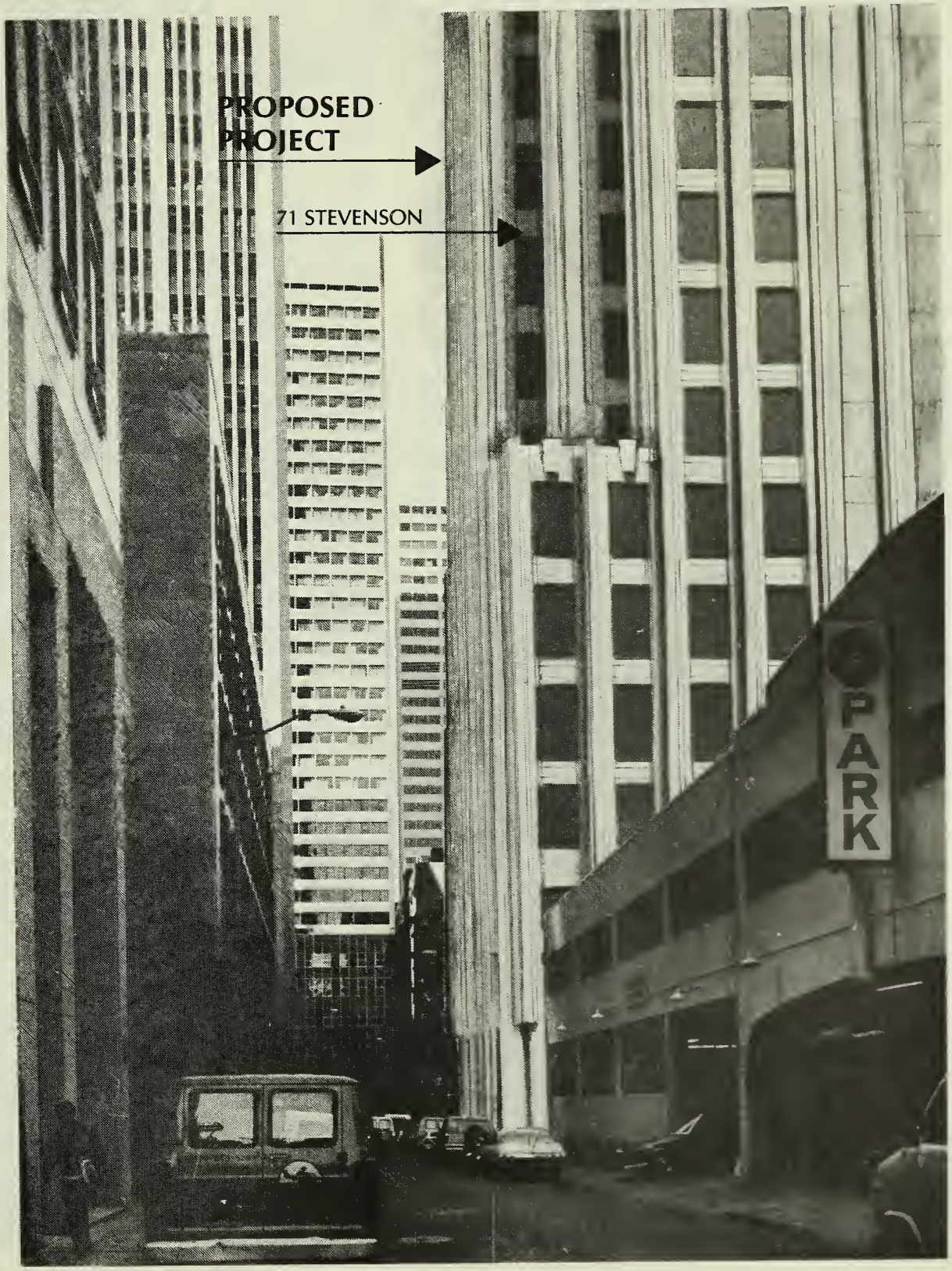
The three-story building base would reflect the rectangular shape of the lot and would be approximately equal in bulk with the bulk of other low-rise structures in the area. The building's 253-foot height would extend above neighboring low-rise development. The structure's height and bulk would also visually relate to the height and bulk of nearby high-rise structures, and would represent a stepping down in height and scale from the city pattern of taller buildings of the Financial District north of Market Street, to lower structures that predominate in the South-of-Market area (Figure 19, 20 and 21, pages 63, 64 and 65).

Neighborhood Environment Policy 13: "Improve pedestrian areas by providing human scale and interest."[8]

The project would be taller than older, low-rise structures fronting Stevenson Street as previously discussed. Visual interest to pedestrians would be provided by retail/commercial shops with windows for viewing the building's interior at ground level along the Stevenson (north) and Ecker (east) street sides of the building. The first and second floors would be set back about 18 feet from the Stevenson and Ecker Street building faces forming a colonnade over pedestrian space adjacent to the north and east portions of the building. Building columns at the lower two floors would extend to the property line along Stevenson and Ecker Streets, assisting in maintaining the definition of Ecker and Stevenson Streets established by adjacent buildings in the area; however, the sharp and distinct definition of the existing street wall would be weakened. Visual interest at the ground level would be provided through the use of decorative and textured surface paving beginning at the curb and extending under the colonnade to the building face. Although due to space limitations, street trees would not be provided for the project, decorative, shade-tolerant shrubs would be provided in raised pots in locations to be determined near the building entries so as not to obstruct pedestrian traffic.

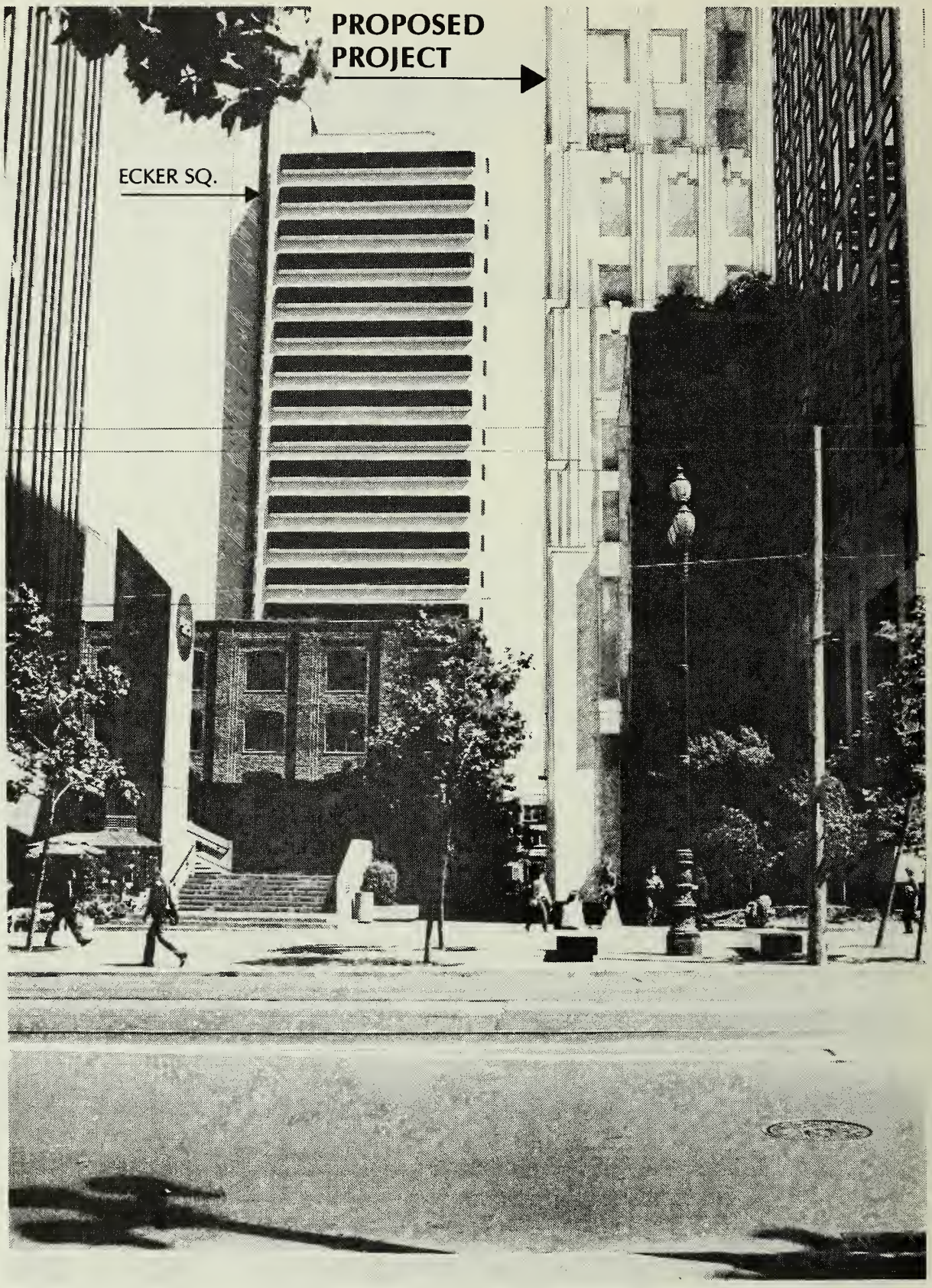
PHOTOMONTAGE: LOOKING EAST ON STEVENSON STREET

SOURCE: EIP CORPORATION



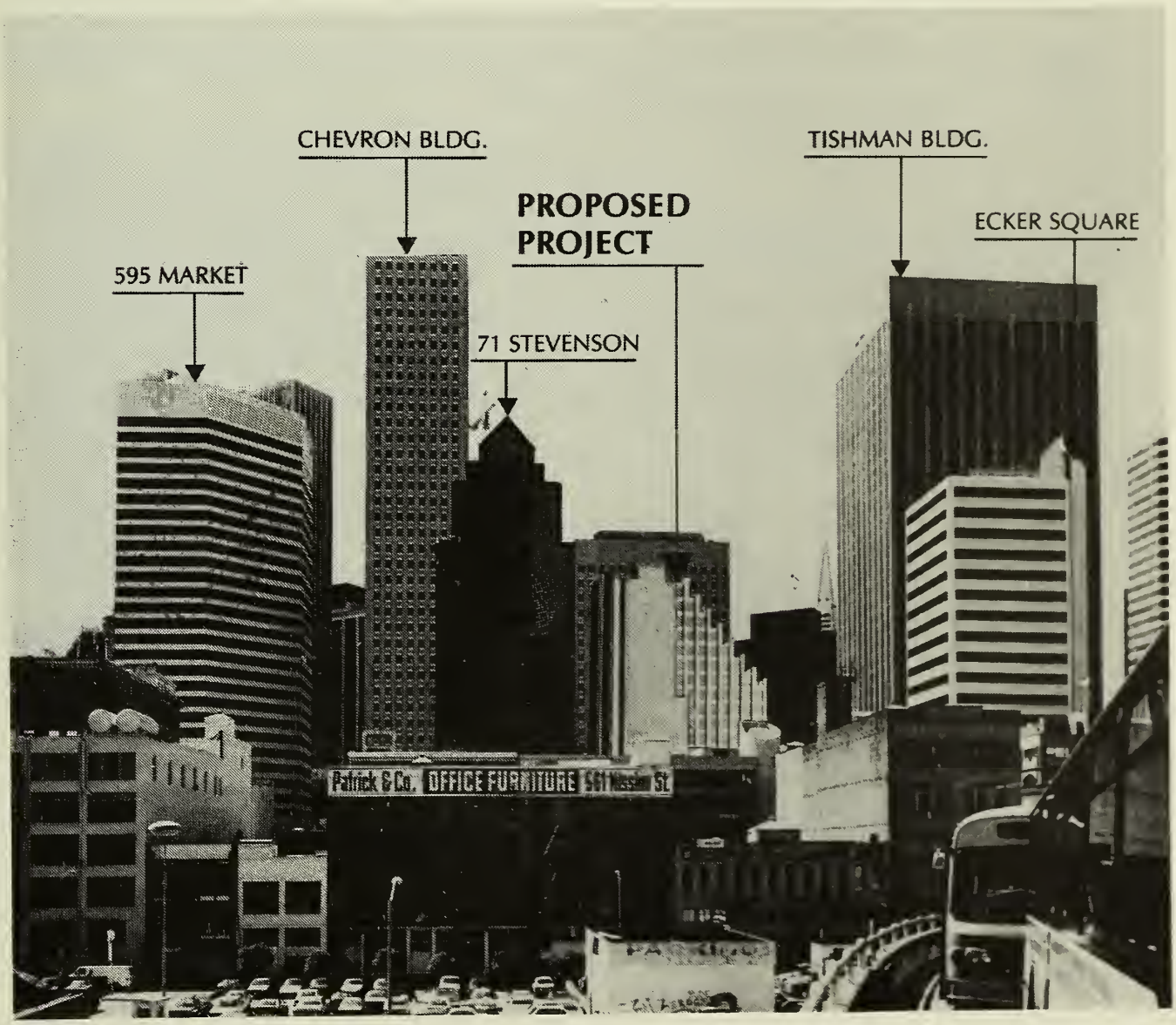
PHOTOMONTAGE: LOOKING SOUTH FROM MARKET STREET ACROSS TISHMAN PLAZA

SOURCE: EIP CORPORATION



PHOTOMONTAGE: LOOKING NORTH FROM TRANSBAY TERMINAL

SOURCE: EIP CORPORATION



City Pattern Policy 3: "Recognize that buildings, when seen together, produce a total effect that characterizes the City and its districts."[9]

The structure would contribute incrementally to the total group of buildings defining the San Francisco skyline. The structure would comprise a new element taking its place in the City's urban form comprised of taller buildings over an increasing land area including the Financial District and South of Market area. The proposed structure would gradually be visually absorbed into the City's skyline by the continued construction of new highrises.

2. Views

The project site does not lie on any street axis with important views for orientation or streets with views of important buildings,[7] nor would any scenic views from public spaces in the City be obstructed by the proposed project. Views of the project would be obscured from Twin Peaks due to the taller 71 Stevenson Street building which would be located adjacent to the west property line of the project site. The structure would fall below the skyline profile of the 71 Stevenson Street Building.

Views from nearby older, low-rise buildings below about the fourth floor are confined to short distances due to existing, surrounding buildings. The proposed structure would not be expected to block pedestrian views and views from other buildings below the fourth floor level to a greater degree than currently exists. However, at increasing heights in adjacent buildings, views from those buildings would be blocked to the building's twenty-first floor level; the degree of view blockage would vary with respect to observer elevation and location in relation to the project. Generally, the farther away from the project the observer would be located, the less view blockage that would be expected to occur, and the reverse. The stepping back of upper floors would provide less view blockage than if a rectangular structure with no setbacks were constructed. Because the building would be located adjacent to the east face of the 71 Stevenson building, there would be restrictions in outward views between both structures in west and east directions, respectively.

Along Stevenson Street, shop fronts, advertising signs and building front design details are major visual elements that attract the attention of pedestrians. Overall building height and building forms are more easily perceived from open street intersections in the area where there are no street trees or structures to obscure views, generally from distances of several hundred feet or more, or along distant vistas which terminate street

corridor views (Figure 19, page 63). The features and visual conditions of Ecker and Stevenson Streets in the project area are shown in Figures 12 and 13, pages 31 and 32.

3. The Downtown Plan

The project's relationship to the planning provisions of the Downtown Plan[10] is summarized in Table 5, page 68.

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[1]San Francisco Department of City Planning, adopted by Resolution 6745 of the San Francisco City Planning Commission, 26 August 1971.

[2]Urban Design Plan, page 25.

[3]Ibid., page 36.

[4]Spandrel: In a multi-story building, a panel-like area between the top of a window and the sill of a window in the story above.

[5]San Francisco Department of City Planning, Final Environmental Impact Report, 71 Stevenson Street, 81.493 E., certified June 16, 1983.

[6]Urban Design Plan, page 37.

[7]Ibid., page 18.

[8]Ibid., page 57.

[9]Ibid., page 10.

[10]San Francisco Department of City Planning, The Downtown Plan, A Proposal for Citizen Review, August, 1983.

TABLE 5

RELATIONSHIP OF THE PROPOSED PROJECT TO THE DOWNTOWN PLAN

The Downtown Plan	Proposed Project
A. Space for Commerce	
(1) Retail Space	
Policy: Meet the convenience needs of daytime workers (p. 16).	The project would include 9,800 gross square feet of restaurants and convenience retail space.
(2) Support Commercial Space	
Policy: Establish subareas (use districts) of downtown with individualized controls to guide the density and location of permitted land use (p. 20).	
Implementing Action: Lower C-3-0 District base FAR from 14:1 to 10:1 (p. 24).	The FAR for the proposed project would be 14:1.
B. Open Space	
Policy: Provide different kinds of open space downtown (p. 55).	Under the provisions of the Downtown Plan, about 3,500 gross square feet of open space would be required for the project.
Policy: Encourage the creation of new open spaces that become a part of an interconnected pedestrian network (p. 57).	The project would provide approximately 3,900 square feet of open space within the arcade or colonnade along Stevenson and Ecker Streets. The Department of City Planning has determined that arcades do not qualify as open space. The requirement could be met by alternate Plan mechanisms such as the development of usable open space on public land or contribution to the Open Space Acquisition and Park Renovation Fund.
Policy: Provide open space that is clearly usable and easily reached from the streets (p. 57).	
Implementing Action: Require usable indoor and outdoor open space, accessible, to the public, as part of new downtown development (p. 58), i.e., plazas, parks, urban gardens, sun and view terraces, greehouse spaces and small sitting areas (pp. 60-61). For the C-3-0 District, require one gross square feet of open space for each 50 gross square feet of development (p. 61).	

TABLE 5 (Cont'd)

The Downtown Plan	Proposed Project
C. Urban Form	
(1) Height and Bulk	
Policy: Relate the height of buildings to important attributes of the city pattern and to the height and character of existing and proposed development (p. 84).	The building's 253-foot height (excluding the rooftop mechanical penthouse) would represent a stepping down in height and scale from the city pattern of taller buildings of the Financial District north of Market Street to lower structures that predominate in the South of Market area.
Policy: Foster sculpturing of building form, less overpowering buildings and more interesting building tops (p. 54).	From the fifth floor level upward, floors of the structure would be progressively stepped inward from the Ecker and Stevenson Street building faces toward the 71 Stevenson Street building, providing a tapering of the building's form and a gradual transition in building height between the four-story One Ecker building and 71 Stevenson Street building.
Implementing Action: Maximum permitted height would be 500 feet (p. 89).	The proposed building height would be 265 feet including the rooftop mechanical penthouse.
Adopt new bulk controls (pp. 92-93)	
- Base not to exceed 50 feet in height.	The building base would be 40 feet in height.
- Above the base to 210-foot height, maximum plan widith not to exceed 160 feet, maximum average diagonal dimension not to exceed 200 feet.	Maximum plan width would be 80 feet while the maximum average diagonal dimension would be 155 feet.
- From 210-feet to 265-feet height, maximum plan width not to exceed 140 feet, maximum average diagonal dimension not to exceed 160 feet.	Maximum plan width would 80 feet while the maximum average diagonal dimension would be 120 feet.
Policy: Maintain separation between buildings to preserve light and air and prevent excessive bulk (p. 96).	See discussion below under "Implementing Action."

TABLE 5 (Cont'd)

The Downtown Plan	Proposed Project
Implementing Action: Require setbacks and separation of towers (p. 96).	
- Above 165 feet, interior lot line setback to be 15 feet.	The west interior lot line setback would be five feet. Portions of the structure would be set back five feet along the south interior lot line.
- Along Stevenson Street, provide 4-foot setback from property line up to 60 feet in height. Above 60 feet in height, provide additional 10 feet setback.	No uniform facade setbacks would be provided along Ecker and Stevenson Streets. Upper floors above the fifth floor level would be progressively stepped back beginning from the corner of the structure facing the intersection of Ecker and Stevenson Streets.
(2) Building Appearance	
Policy: Ensure that new facades relate harmoniously with nearby facade patterns (p. 105).	A three-story base would be constructed on which the main vertical portion (shaft) of the building would be situated. The height of the base with colonnade would be compatible in scale and height with the two-story colonnade of the 71 Stevenson Street building along Stevenson Street and four-story height of the One Ecker building. The two-story covered arcade along Stevenson Street would continue the arcade established by the 71 Stevenson building. The arcade columns would continue up along the face of the building base to the roofline of the structure's upper stories. Visually, the spandrels would be subordinate to the vertical columns. The spandrels and columns would be a light-buff color avoiding contrast and complimenting the red brick color of older structures in the area, representing a blend of old and new construction.
Policy: Prohibit the use of highly reflective materials and encourage the use of light toned materials in new buildings (p. 105).	The structure would contain clear, non-reflective (untinted) glass. The spandrels and columns would be fabricated of light buff-colored concrete.

TABLE 5 (Cont'd)

The Downtown Plan	Proposed Project
Implementing Action: Modify the Planning Code to encourage architectural embellishments (p. 105).	The vertical columns would extend about 6 to 12 inches beyond the faces of the building.
(3) Streetscape	
Policy: Conserve the traditional street to building relationship that characterizes downtown San Francisco (p. 106).	Building columns at the lower two floors would extend to the property line along Stevenson and Ecker Streets, assisting in maintaining the definition of Ecker and Stevenson Streets established by adjacent buildings in the area. However, the sharp and distinct definition of the street wall would be weakened.
Policy: Provide setbacks above a building base to maintain the continuity of the predominant streetwalls along the street (p. 106).	Setbacks would be provided above the base at varying levels rather than just at the base. The streetwall would be modified by provision of the two-story colonnade along Ecker and Stevenson Streets.
Policy: Use designs and materials and include activities at the ground floor to create pedestrian interest (p. 107).	Visual interest at the ground level would be provided through the use of decorative, textured surface paving beginning at the street edge and extending under the colonnade to the building face. The narrow width of Stevenson and Ecker Streets would preclude the use of street trees. Decorative shade-tolerant shrubs would be provided in raised pots and located near the building entries. Visual interest to pedestrians would be provided by 3,700 gross square feet of restaurant/commercial shops with windows for viewing the building's interior at ground level along the Stevenson (north) and Ecker (east) street sides of the building.
Policy: Encourage the incorporation of publicly visible art works in new private development (p. 108).	The project sponsor has not yet determined whether to incorporate art works into the project.

TABLE 5 (Cont'd)

The Downtown Plan	Proposed Project
D. Moving About	
(1) Off-Street Loading Facilities	
Policy: Require off-street facilities for freight loading and service vehicles in all new developments (p. 135).	Two 12 ft. x 35 ft. off-street freight loading bays would be provided.
Implementing Action: For offices, provide 0.1 off-street parking spaces for freight loading and service vehicles per 10,000 sq. ft. of gross floor area, and 1.7 spaces per 10,000 sq. ft. of gross floor area for restaurants (p. 136).	169,600 gross sq. ft. office space ÷ 10,000 sq.ft. = 17 x 0.1 off-street parking spaces = 1.7 parking spaces. No off-street parking would be provided for restaurants in the building.
Policy: Discourage access to off-street freight loading and service vehicle facilities from pedestrian-oriented streets and alleys (p. 137).	Access to off-street freight loading would be from Stevenson Street (see Item 2, Pedestrians, below).
Policy: Provide limited loading spaces on streets to meet the need for peak period or short-term small deliveries and essential services (p. 137).	Adjacent to the site, the Stevenson Street curb frontage presently includes a yellow loading zone about 50 feet long and a two-hour parking zone about 30 feet long. Curb coloring along the project frontage would be determined at a later date.
(2) Pedestrians	
Policy: Provide sufficient pedestrian movement space (p. 138).	The project would provide about 3,900 sq.ft. of additional pedestrian space within the arcade along Stevenson and Ecker Streets. Ecker Street is proposed as a through-block exclusive pedestrian way (Downtown Plan, Figure 19, p. 124) and is listed as an existing part-time pedestrian street (Map 17, p. 139). Stevenson Street is listed as a proposed pedestrian/service street.
Implementing Action: Implement proposals for arcades and through-block pedestrian ways (p. 138).	

TABLE 5 (Cont'd)

The Downtown Plan	Proposed Project
Policy: Improve the ambience of the the pedestrian environment (p. 143).	The pedestrian environment would be improved through the use of decorative, textured surface paving beginning at the street curb and extending within the arcade to the building face. The sponsor has agreed to participate in a special assessment district to be created in order to maintain Ecker Street pedestrian treatments (see Section V. Mitigation Measures, page 135).
Implementing Action: Implement the improvement projects proposed for downtown streets and alleys. Ecker Street roadway is proposed to be filled in and paved with brick, and Stevenson Street is proposed to be repaved (Downtown Plan, Figure 19, p. 124). Additional proposals call for the planting of trees, theme lighting, banners and benches along Stevenson and Ecker Streets (Downtown Plan, Figure 19, p. 124).	

D. SHADOWS AND WIND

1. Shadows

Shadow patterns for existing and proposed buildings in the project area are shown for 10 a.m., 12 noon and 3 p.m. on the first day of each season (see Figures 22 through 25, pages 75 through 78). Areas where shadows from 49 Stevenson, 71 Stevenson (recently approved) and Lincoln Plaza (under review) overlap are also shown. Shadows cast on building rooftops are not shown. Since the proximity of both Tishman and Chevron Garden Plazas in the block north of the site makes shadows an important issues, shadow studies were also prepared for 11:00 a.m. and 1:00 p.m. (see Appendix H, page A-79). It should be noted that while the entire Tishman Plaza area is publicly accessible only a portion of Chevron Plaza is open to the public from Market Street. Chevron Plaza is not accessible from Stevenson Street.

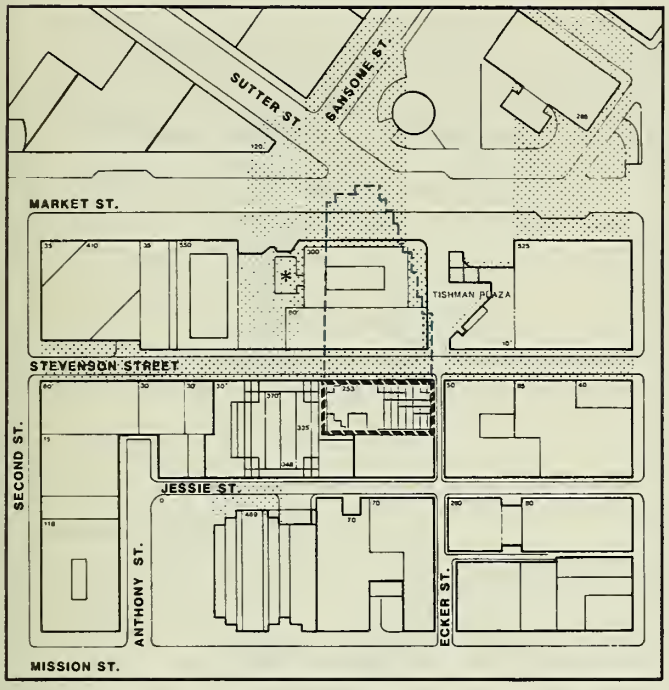
At 3 p.m. for all seasons, no new shadows would be cast by the proposed project. At other tmes, impacts would occur as shown in Figures 22 through 25 and as described below.

On June 21, at 10 a.m., the project would cast new shadows on the north side of Stevenson Street, northwest of the project site, and on the remaining unshaded portion of the Chevron Garden Plaza. At noon on June 21, the project would cast a new shadow on the north side of Stevenson Street across from the project site.

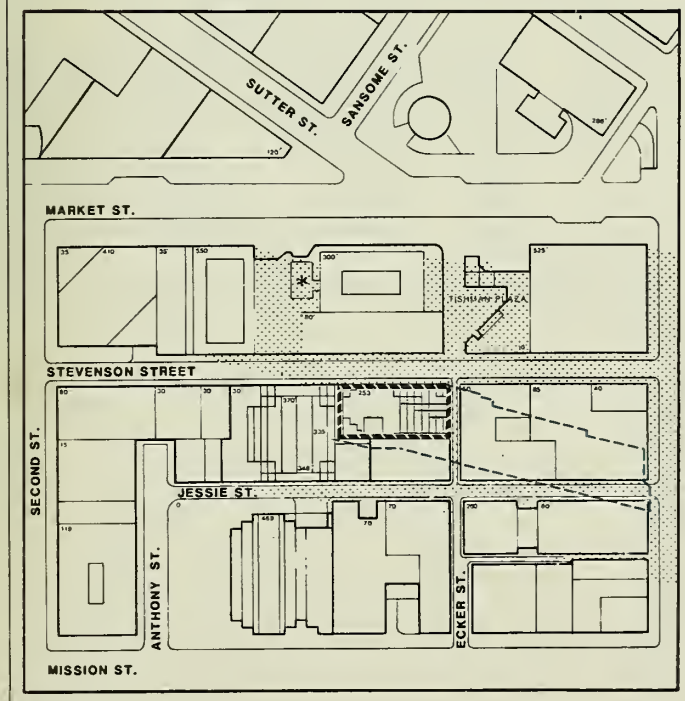
On March 21 at 10 a.m. the only new shadows form the project would be on a small (approximately 10-foot by 50-foot) rectangular portion of Tishman Plaza. At noon on March 21 the proposed project would shade a portion of Tishman Plaza, not currently shaded; approximately 35 to 40 feet of the Plaza's upper deck would remain in sun. In addition, approximately 200 feet of sidewalk along the north side of Stevenson Street would be in shade. As Figure 23 illustrates, however, some of this newly shaded area would also receive shadows from the 71 Stevenson project, if constructed.

On September 21 at 10 a.m. new shadows from the project would occur on about 20 feet of sidewalk along Stevenson Street and a very narrow strip (less than five feet) of sidewalk on both sides of Market Street. At noon on September 21, the project would cast new shadows on the western half of Tishman Plaza, along approximately 180 feet of the Stevenson Street sidewalk and on a portion of Ecker Street. As Figure 25 illustrates, some of the Stevenson Street sidewalk would also be shaded by the 71 Stevenson project, if built.

SHADOW PATTERNS: MARCH 21 (PST)



10 A.M.



3 P.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

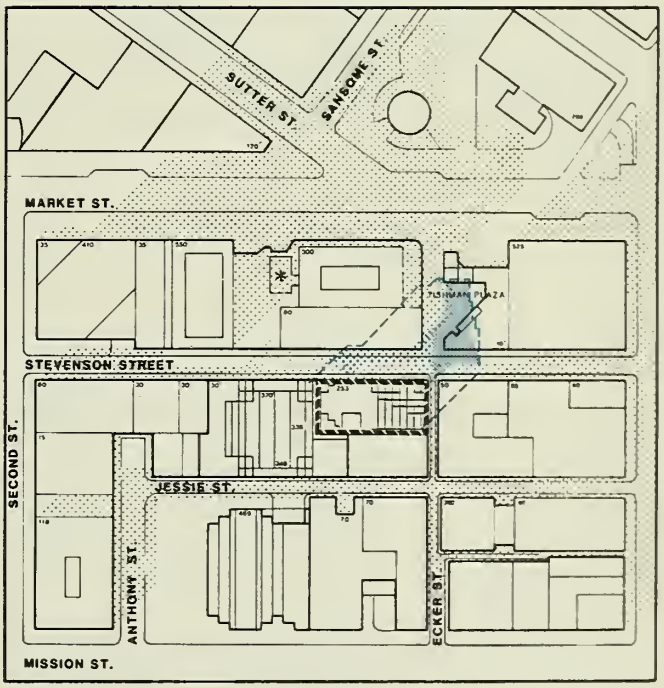
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

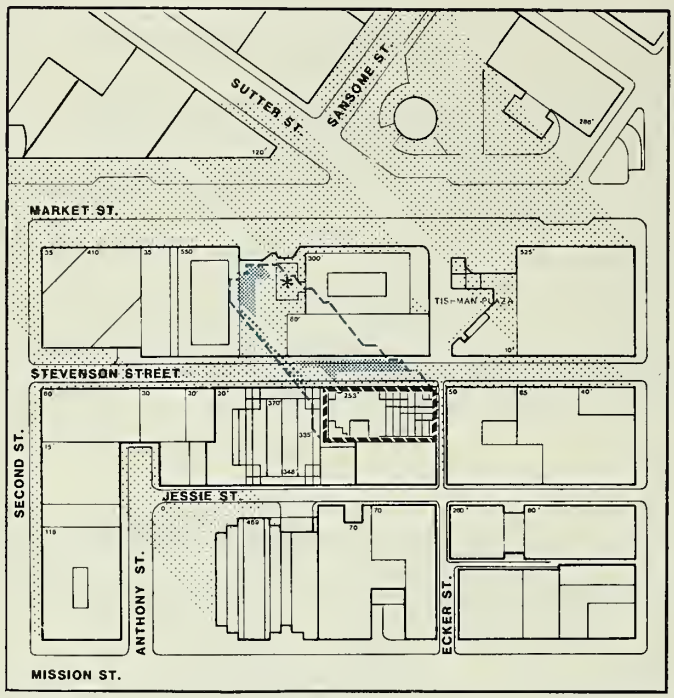
SOURCE EIP CORPORATION

FEET 0 100 200 400

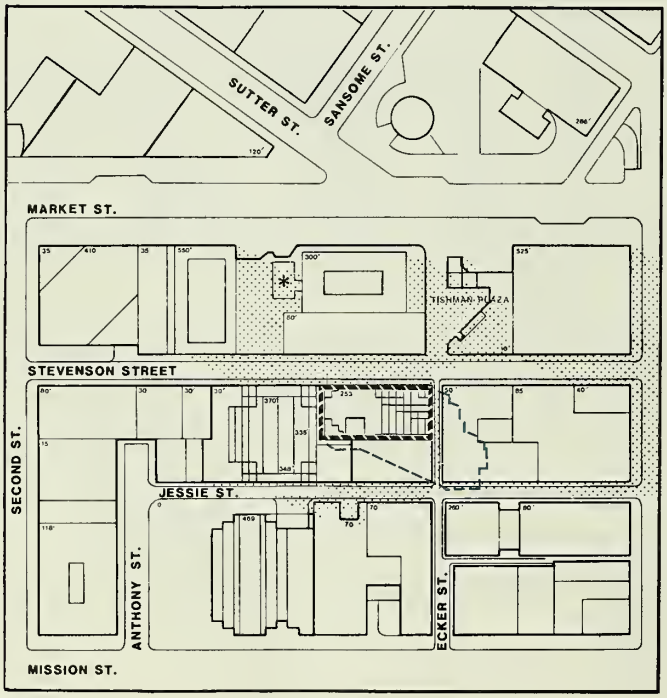


12 Noon

SHADOW PATTERNS: JUNE 21 (PDT)



10 A.M.



3 P.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

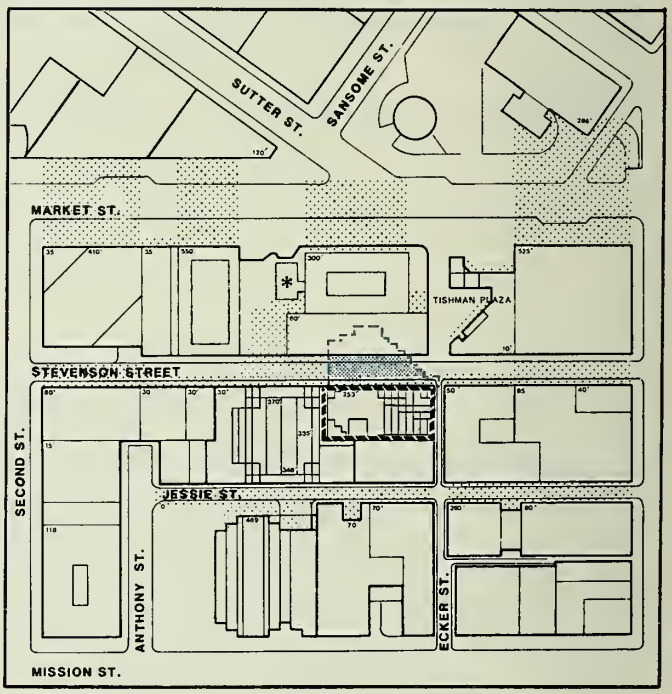
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

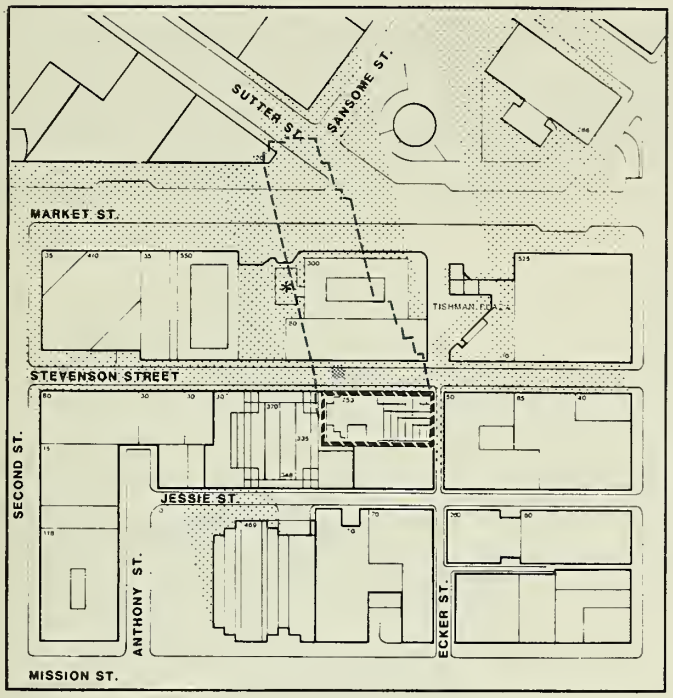
SOURCE: EIP CORPORATION

FEET 0 100 200 400

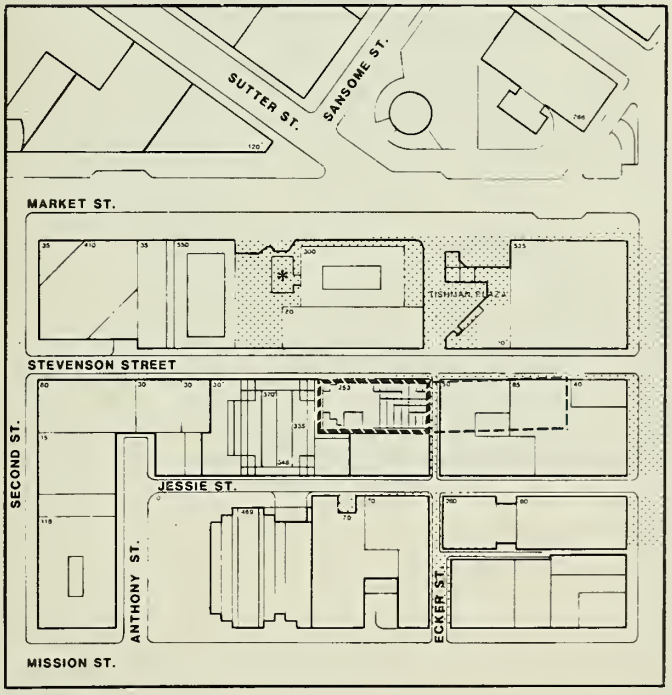


12 Noon

SHADOW PATTERNS: SEPTEMBER 21 (PDT)



10 A.M.



3 P.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

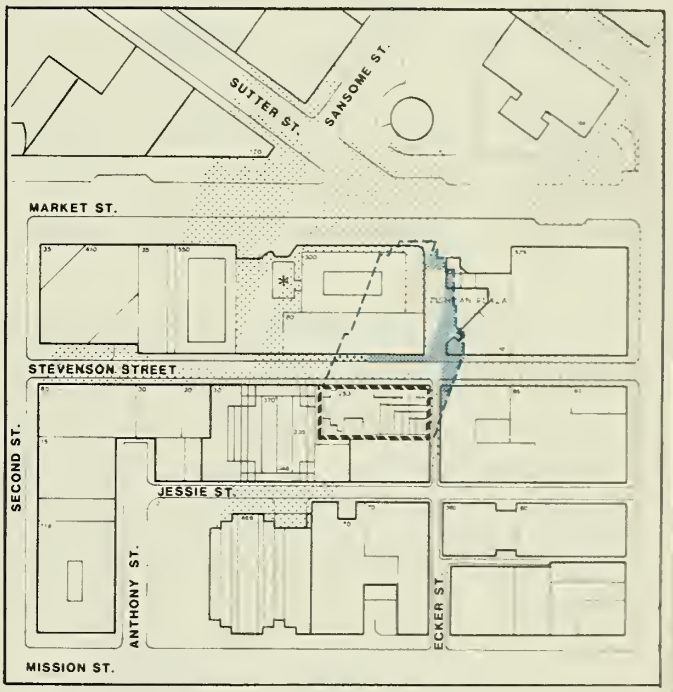
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

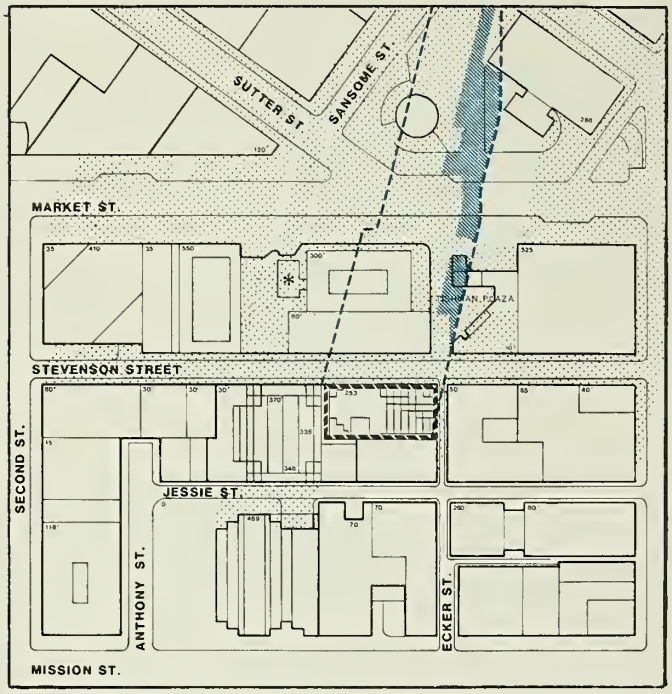
SOURCE: EIP CORPORATION

FEET 0 100 200 400

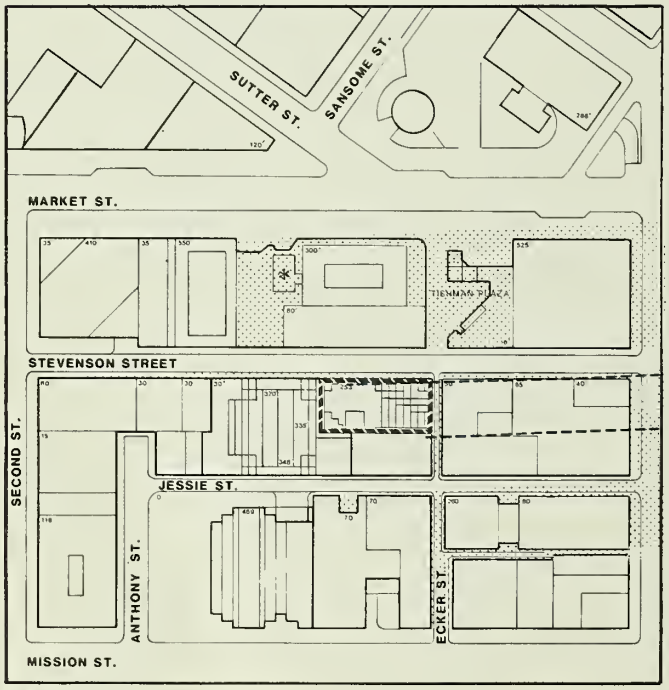


12 Noon

SHADOW PATTERNS: DECEMBER 21 (PST)



10 A.M.



3 P.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

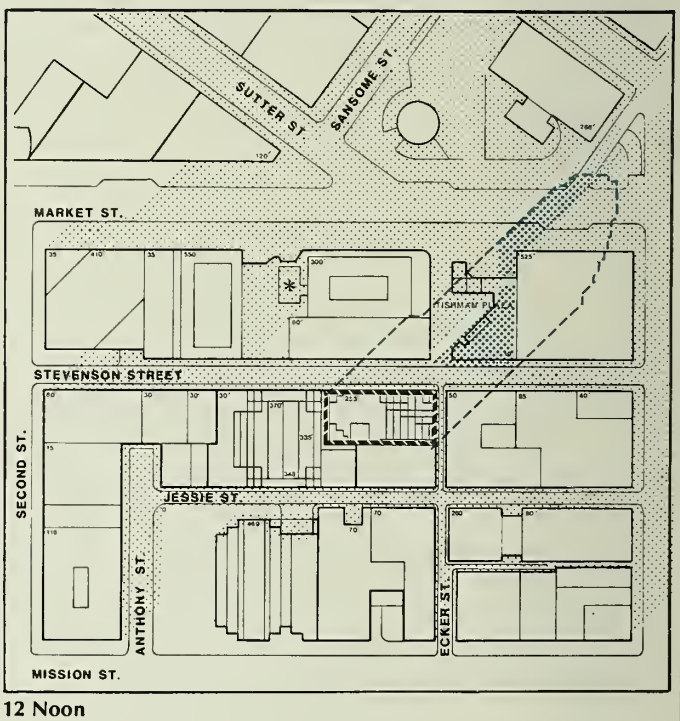
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

FEET 0 100 200 400



12 Noon

On December 21 at 10 a.m. a 25- to 30-foot-wide shadow from the project would be cast on Tishman Plaza and across both Market Street sidewalks. Across Market Street, the area affected by new shadows from the project would widen and shade remaining portions of the Crown Zellerbach Plaza not currently shaded. At noon on December 21 the proposed project and the approved 71 Stevenson and proposed 562 Mission projects would cast overlapping shadows on the existing ten-foot-wide sunny portion of Tishman Plaza and a 60-foot-wide sunny portion of Market Street (see Figure 25, page 78).

The project's impacts on Tishman and/or Chevron Plazas would occur as described below.

On March 21, new shadows from the proposed 49 Stevenson project would first begin to be cast on Tishman Plaza at about 10:00 a.m. and would continue to shade portions of the plaza until about 2:00 p.m. Overlapping shadows from the 49 Stevenson and 71 Stevenson projects would be cast on to a portion of Chevron Plaza in the early morning (before 9:00 a.m.) but the publicly accessible portion of the plaza would be shaded by existing buildings.

On June 21, the proposed project would briefly shade a portion of the private Chevron Plaza between about 9:00 a.m. and 10:30 a.m. but the proposed project's shadows would only reach the sidewalk along the south side of Tishman Plaza for a brief time.

On September 21, shadows from the proposed project would begin to be cast on a portion of Tishman Plaza shortly after 11:00 a.m. Portions of this plaza would continue to be shaded by the project until shortly after 2:00 p.m. As with shadows for March 21, the publicly accessible portion of Chevron Plaza would not be shaded by the proposed project due to shadows from existing buildings. The southwestern portion of the Chevron Plaza would, however, receive overlapping shadows from the 49 Stevenson and 71 Stevenson projects.

On December 21, shadows from the proposed project would begin to hit Tishman Plaza at around 9:30 a.m. Overlapping shadows from 49 Stevenson, 71 Stevenson and the Lincoln Plaza buildings would continue to fall on Tishman Plaza until 1:30 or 2:00 p.m. In December the proposed project would not cast any new shadows on Chevron Plaza.

Analysis of sunlight reduction were prepared for three locations near the project site. These analysis show the path of the sun during the year across a photograph of the sky taken with a fish-eye lens. This technique accurately depicts the times of the year and times of the day that direct sunlight reaches a location and the percentages of the sky blocked by buildings, but gives an exaggerated qualitative perception due to the distortion inherent in the use of the fish-eye lens.

Figure 26, page 81 shows a sky plane analysis for Stevenson Street. This location currently receives sunlight from about 10:00 a.m. to 2:00 p.m. in the spring and summer, and from noon to 3:00 p.m. in the fall and winter. The adjacent 71 Stevenson project (recently approved) would reduce sunlight in the afternoon to less than one hour. The proposed project would eliminate morning sunlight in spring and summer.

Figure 27, page 82, shows a sky plane analysis for a location on Ecker Street (see inset for location). Ecker Street receives sunlight for one to two hours in the morning. The proposed project would reduce this sunlight by as much as one hour in the spring and summer just prior to noon. The proposed project would have no effect during the fall and winter.

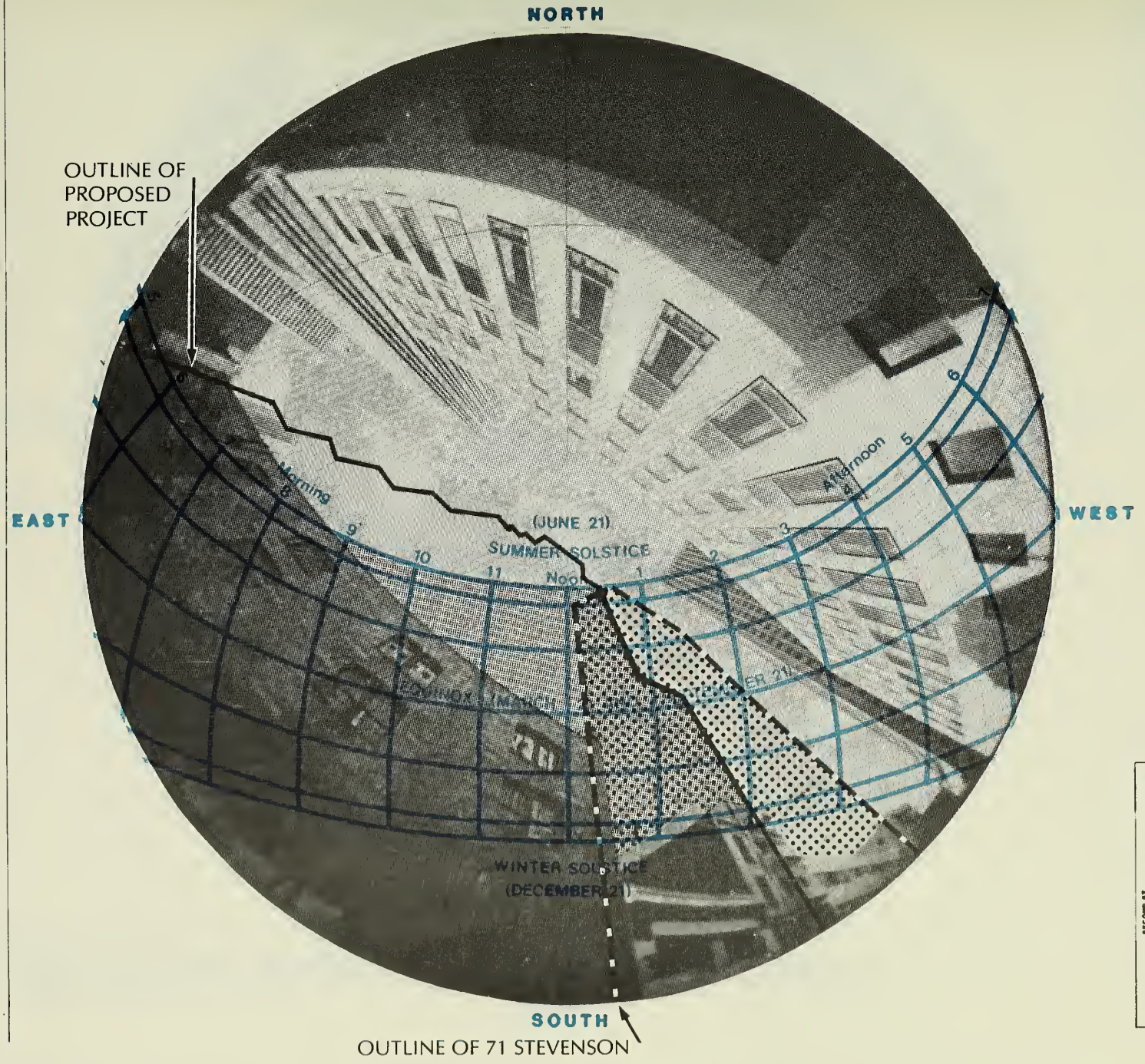
Figure 28, page 83, shows a sky-plane analysis for the upper level of Tishman Plaza. The proposed project would reduce sunlight duration by two to two and one-half hours in the winter and fall months, early spring and late summer months. There would be no sunlight reduction during late spring and early summer.

The proposed design utilizies numerous setbacks and cutouts that would reduce the length of shadows cast by the building. Elimination of all project-related shadow impacts on Tishman Plaza could be obtained only by substantially reducing the proposed building height by about 50% .

2. Wind

Winds in San Francisco are generally strongest in the summer. During the summer, winds are from the northwest, west and southwest about 97% of the time, with a mean speed of eight miles per hour. Wind tunnel tests were conducted for these three most common wind directions. Wind tunnel information was combined with wind records to predict

SKY PLANE EXPOSURE FROM STEVENSON STREET, UPPER LEVEL



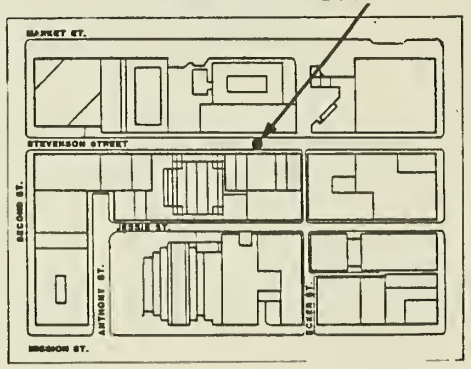
AREA OF SUN PATH AFFECTED BY PROPOSED PROJECT

AREA OF SUN PATH AFFECTED BY 71 STEVENSON PROJECT

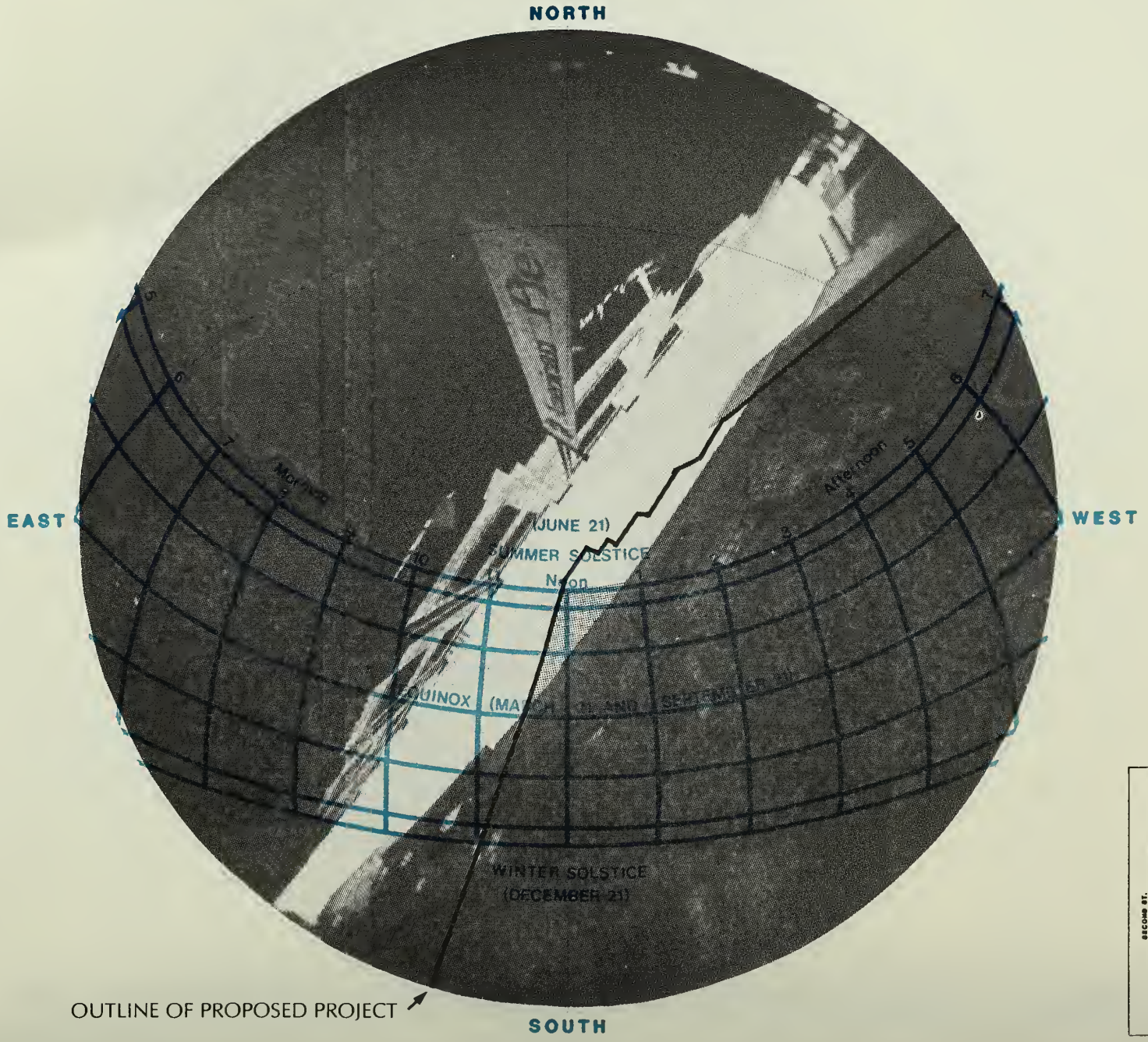
OVERLAPPING AREA AFFECTED BY BOTH PROJECTS

SOURCE: DON BALLANTI

VIEW LOCATION



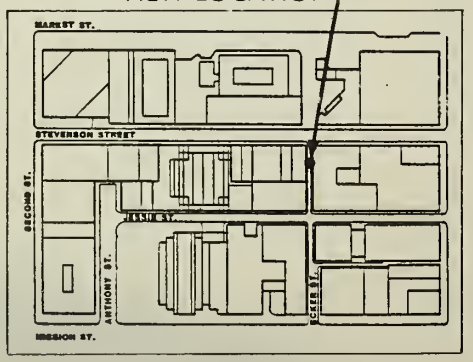
SKY PLANE EXPOSURE FROM ECKER STREET



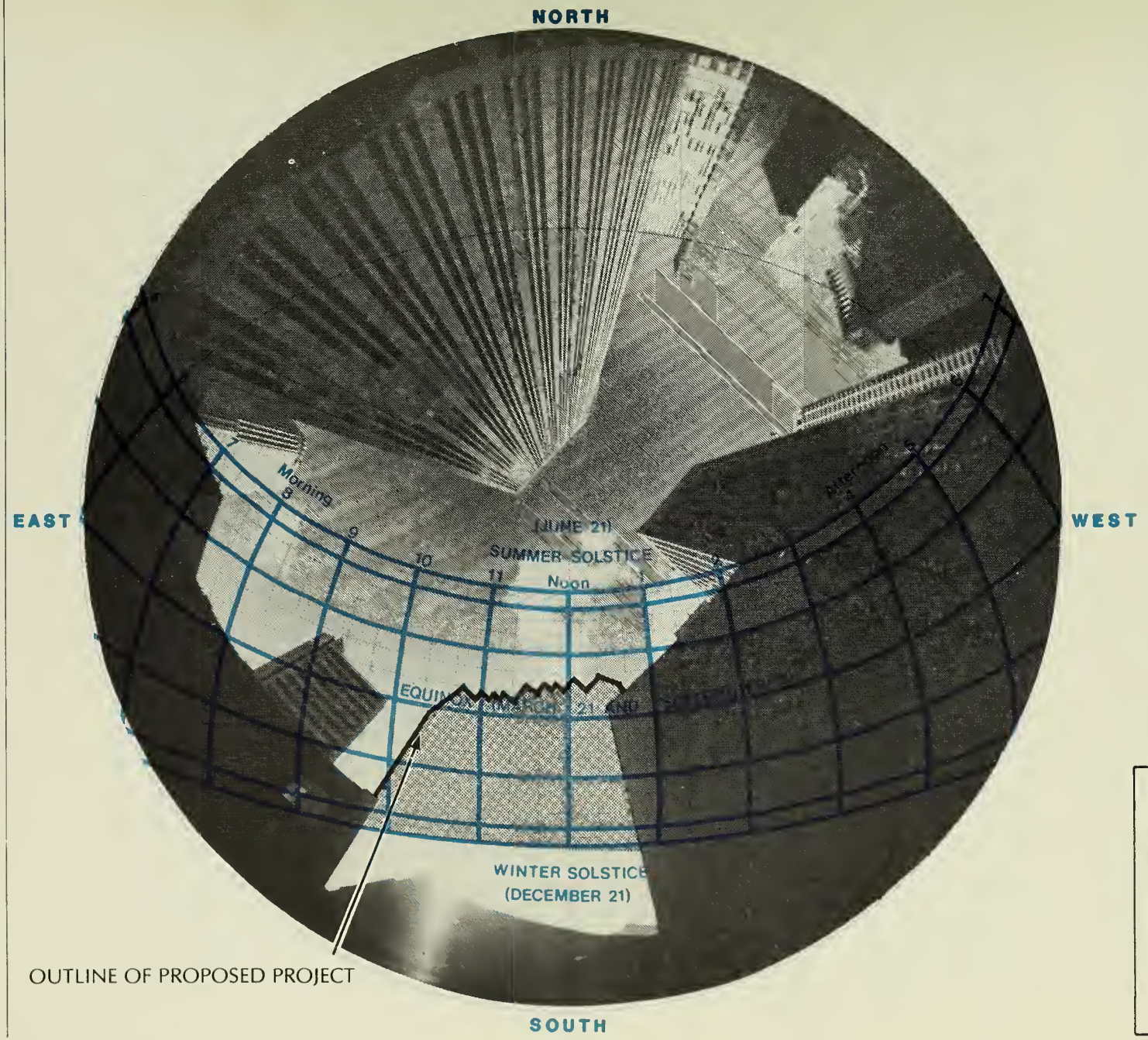
AREA OF SUN PATH AFFECTED BY PROPOSED PROJECT

SOURCE: DON BALLANTI

VIEW LOCATION



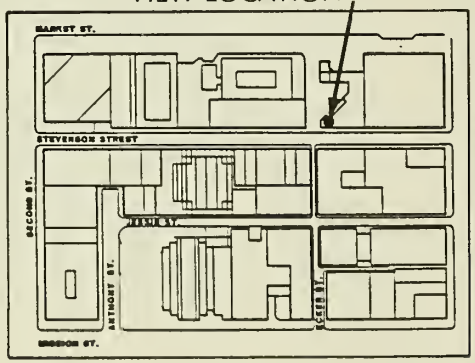
SKY PLANE EXPOSURE FROM TISHMAN PLAZA



AREA OF SUN PATH AFFECTED BY PROPOSED PROJECT

SOURCE: DON BALLANTI

VIEW LOCATION



average windspeeds at locations near the project site. The average windspeeds were compared to criteria for pedestrian discomfort and pedestrian hazard.

Wind tunnel tests were not conducted on the current design, but were on two earlier designs (see Appendix C, page A-29). These earlier designs were predicted to increase windspeeds of 10-25% for northwest winds near the Ecker/Stevenson intersection and along Ecker Street adjacent the site, and accelerate winds 30 to 50% along locations along Stevenson Street for southwest winds. Neither the wind comfort criterion nor the hazard criterion would be exceeded, however.

The current design incorporates multiple setbacks and cutouts into both the southwest and northwest facades. In the opinion of the certified meteoroligist who performed the analysis on the previous project design, wind accelerations associated with this design would be are expected to be lower than those of the earlier design tested in the wind tunnel, and the comfort and hazard criterion would are not be expected to be exceeded.[1]

Wind tunnel tests were also conducted for different combinations of two other proposed buildings within the project block: the 71 Stevenson project (recently approved) and Lincoln Plaza (currently under formal review). The wind study was performed on a previous design of Lincoln Plaza, however, this change would not substantially alter the windspeed data or results.[2] The addition of either or both of these proposed structures would not alter windspeeds near the project site under northwest or west wind conditions.

The 71 Stevenson project would increase southwest winds adjacent to the 71 Stevenson site along Stevenson Street. At the same time, winds would be reduced to below present levels adjacent to the 49 Stevenson site because the project site would be sheltered from southwest winds by the new 71 Stevenson building. The Lincoln Plaza project would increase southwest winds above the comfort criterion along Jessie Street from Anthony Place to Ecker Street. Together the 71 Stevenson and Lincoln Plaza projects would increase southwest winds to above the comfort criterion along portions of Stevenson Street and along most of Jessie Street between Anthony Place and Ecker Street. Therefore, exceedences of the comfort criterion for southwest winds are not a result of the 49 Stevenson project but are predicted with the cumulative construction of either or both the 71 Stevenson and Lincoln Plaza projects. For further discussion of the cumulative wind impacts see Appendix C.

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[1]Letter from Donald Ballanti, Consulting Meteorologist, to EIP Corporation, dated August 11, 1983. Appears on page A-56, Appendix C.

[2]Letter from Donald Ballanti to Bendix Environmental Research, Inc., Lincoln Plaza EIR Consultant, August 18, 1983.

E. ARCHITECTURAL RESOURCES

The project would demolish three buildings. Each of these buildings is rated "C"[1] by the Foundation for San Francisco's Architectural Heritage. 53 Stevenson is rated "1" by the Department of City Planning survey of Architecturally and/or Historically Significant Buildings;[2] the other two buildings were not rated. None of the buildings on the project site are included in a list of Architecturally and/or Historically Significant Buildings adopted by City Planning Resolution 8600.

49 Stevenson is a four-story brick warehouse constructed in 1909. 53 Stevenson is a one-story brick building built in 1908 with a skeletal facade treatment in the Renaissance/Baroque style. The four-story brick building at 55 Stevenson was built in 1910 and has timber framing clad in iron with a mansard roof and dormer windows.

Three warehouses, one parking garage and a prefabricated metal diner would be removed as a result of proposed cumulative development in the project area (see Section III.C., page 36 for further discussion of these structures). With the exception of the diner, all of these structures represent industrial buildings that were constructed in the South of Market area between 1900 and 1925. All of these structures have been rated "C" by Heritage.

Cumulatively, construction of this project and other planned development would alter the historic character of the area. The current predominance of low-rise industrial buildings converted to retail, office, and restaurant uses would give way to a preponderance of high-rise office buildings. This trend is indicative of development in the South of Market area close to Market Street. The existing nearby buildings remaining with a "C" rating would be fewer and they would become less important because, according to Splendid Survivors,[3] they are recognized (by Heritage) to be of contextural importance; these buildings "are distinguished by their scale, materials, compositional treatment, cornice and other features."[3] Such buildings establish the setting for buildings of more historical or architectural note.

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[1]Buildings rated "C" have contextual importance; that is, they have recognized architectural features but provide a setting for the downtown buildings rated for outstanding qualities.

[2]The Department of City Planning's rating system progresses from "5" to "1", with "1" being the least important in architectural and/or historic value.

[3]The Foundation for San Francisco's Architectural Heritage, Splendid Survivors, San Francisco, California Living Books, 1979, page 13.

F. TRANSPORTATION

1. Trip Generation and Distribution

a. Project Travel Demand

Based on City guidelines and Caltrans trip generation research, the project travel has been calculated in Table 6, page 89.[1,2] The project would generate a total of about 2,040 net new person trips daily. A total of 215 outbound trips would occur during the peak hour and 335 trips during the peak two-hour period. The geographical and modal distribution of project travel (Table 7, page 90) has been based upon projected modal splits for the year 2000 contained in the Draft EIR (DEIR) for the Downtown Plan (EE81.3).[3]

Future modal splits have been used to compare project travel with future travel demand on San Francisco's transportation system. The modal splits used were derived from aggregate data for the C-3 District, the zoning district containing the project site, and thus represent an average condition. The actual modal split for project travel may differ from the C-3 District average. However, because the travel demand forecasts used to derive the average modal split data include project travel, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

b. Cumulative Travel Demand

Analysis in San Francisco EIRs of the transportation impacts of cumulative development has been the subject of considerable public discussion. To date, cumulative analysis has been based on a list of proposed development in the greater downtown area (see Appendix E, Table E-1, page A-62 of this report, for the March 10, 1984 list of these projects). The Downtown Plan DEIR presents a refinement of the existing process in which projections of employment growth, independent of a list of proposed projects, are used to project future travel.[4]

As discussed in Appendix J of the Downtown Plan DEIR, future implementation of planned transit service improvements is assumed. These planned improvements would allow system capacities to keep pace with demand increases. The Downtown Plan DEIR analysis also assumes that regional auto demand will continue to change, reflecting the increasing congestion on the bridges and freeways serving the City. The analysis for commuting

TABLE 6

PROJECT PERSON TRIP GENERATION

Land Use (net square feet)	Daily Trip Rate	Daily Trips	Peak-Period Trips (1-hr/2-hr)	
			Total	Outbound
- (2,900) gross sq. ft. retail area (net new area)	150/1,000[1,2]	(435)	(45/90)	(25/45)
- 136,900 gross sq. ft. office area	18.1/1,000[3]	2,475	260/410	240/380
	NET TOTALS	2,040	215/320	215/335

- (435) daily retail trips	= (15) work trips[4]	=	(420) non-work trips
- 2,475 daily office trips	= 990 work trips[4]	=	1,485 non-work trips
TOTALS	975 work trips		1,065 non-work trips

[1]Institute of Transportation Engineers, Trip Generation, 1979, not paginated.

[2]Caltrans, Eleventh Progress Report on Trip Ends Generation, July 1976, pages 167, 168, 171 and 174.

[3]SFDCP, Guidelines for Environmental Review, September 1983.

[4]Based upon one retail employee per 350 gross square feet and one office employee per 275 gross square feet as outlined in the City's Guidelines.

TABLE 7

DISTRIBUTION OF PROJECT TRIPS

Trip Location	Mode	Peak-Period Trips 1 Hour/2 Hour Work[1]
San Francisco	Auto	35/45
	Muni	50/75
	BART	5/10
	Walk	10/15
	Other	10/15
		110/160
East Bay	Auto	15/20
	BART	35/50
	AC	10/20
	Other	5/10
		65/100
Peninsula	Auto	10/20
	BART	5/10
	SP	5/10
	SamTrans	5/10
	Other	---
		25/50
North Bay	Auto	5/10
	GGT Bus	10/15
	GGT Ferry	---
	Other	---
		15/25
	TOTAL	215/335

[1]The project would involve a net reduction in the site's retail area and this reduction would result in essentially no additional non-work travel to and from the site during the peak period.

Source: San Francisco Department of City Planning, Draft EIR for the Downtown Plan, EE 81.3, March 16, 1984; on file at the Office of Environmental Review, 450 McAllister Street, San Francisco, Fifth Floor.

projects a shift from single-occupant auto use (driving alone) to ridesharing (carpool, vanpool) and to transit use.

The travel data presented in the Downtown Plan DEIR transportation sections (and in this report) are projections of total demand on the transportation system serving San Francisco. The projections are comprised of three components of travel demand. Two of the components were developed through an intricate travel modeling process for the C-3 District of San Francisco. These first two components are C-3 District work (employee journey-to-work) travel and C-3 District non-work (all other) travel. The third component is non-C-3-District travel, which was forecast through an analysis of regional trends adjusted for development in the C-3 District.

Although the C-3 District modeling process used analytical techniques common to travel forecasting, several portions of the process are unique to the C-3 District. This uniqueness results from the two major data bases used: an inventory of existing land uses in the district and surveys of employees and employers in the district. The data developed from the surveys and the inventory have been used as the basis from which to make forecasts of development and employment growth in the C-3 District. The following sections of the Downtown Plan DEIR, containing detailed information about methods used to project future employment in the C-3 District, are incorporated by reference into this report: Sections IV.B., Land Use and Real Estate Development; IV.C., Business and Employment; IV.D., Residence Patterns and Housing; and Appendices G, Land Use and Real Estate Analysis; H, Business and Employment Analysis; and I, Theoretical Discussion of Housing Market Effects/Methodology for Forecasting Residence Patterns. The employment projections in the Downtown Plan DEIR for the year 2000 exceed the maximum employment projected using the current list-based cumulative analysis, because the list cannot take into account projects not yet proposed. The employment forecasts have been used as the basis for the travel demand modeling process. As previously described, the C-3 District travel comprised two of the three components of total travel. Because of the employment projections used in the travel demand modeling process, the transportation forecasts for the year 2000 are independent of cumulative development lists.

Through a complex calibration and validation process of comparing projections of travel demand (modeled on the basis of the survey of C-3 District employees) to actual travel

(from measurements made by state, city and regional agencies), work and non-work travel demand from the C-3 District was modeled for the years 1984, 1990 and 2000. The modeling process is comprised of the following steps:

- Trip generation rates (empirical measures of total travel to and from a specific land use) were applied to employment forecasts by business activity (i.e., different rates were used for various land uses).
- The total travel from the C-3 District was distributed to seven Bay Area zones on the basis of projections of future employee residence patterns and origin-destination patterns for non-work travel.
- Trips to each of the seven regional zones were assigned to travel modes on the basis of modal splits (distribution of travel over the transportation modes, auto, transit, etc.) developed from the C-3 District surveys.

At this stage of the process, the model forecasts total travel from the C-3 District. To complete the process and allow analysis of the effect of C-3 District travel demand on the transportation network, the non-C-3 travel demand was analyzed. The total travel demand was calculated by summing up C-3 District work and non-work travel and non-C-3 travel at sub-regional measuring points (called screenlines) located at or just beyond the San Francisco county line (except for Muni and BART Peninsula service which was measured inside San Francisco, outside the downtown). The total travel demand was then compared to available service (capacity) at the screenlines and operating conditions (demand-to-capacity ratios) were analyzed assuming planned improvements. The results of these analyses are summarized later in this section.

For future years, the C-3 travel modeling process was modified to incorporate changes in travel patterns (modal split changes, different travel times), employee residence patterns and land use patterns. The process incorporates the dynamic aspects of changing Bay Area travel patterns, rather than remaining static over time. An example of past changes in travel patterns can be seen in the amount of carpooling activity on the Bay Bridge. In 1977, peak-period average vehicle occupancy westbound on the bridge was 1.7 persons per vehicle. By 1983, in response to increasing congestion and increased travel and parking costs, peak-period average vehicle occupancy westbound increased to 2.1 persons per vehicle.[5] The non-C-3 travel demand was forecast through the use of growth factor trends in regional and sub-regional travel.[6]

The other process used to forecast cumulative transportation impacts starts with a list of cumulative office and retail development (net new office and retail space) proposed, approved or under construction in the greater downtown area. From that list, using static employment densities for office and retail uses and established trip generation rates, forecasts of travel demand are made. The forecast travel is assigned to modes on the basis of static modal split factors (not assumed to change over time). The Guidelines for Environmental Review: Transportation Impacts (Department of City Planning, 1983, hereinafter called "Guidelines") describe the process and the data used to calculate transportation impacts from the list-based development.

The latest list, shown in Appendix E, has about 19 million gross square feet (gsf) of net new office space and about 0.9 million gsf of net new retail space. On the basis of the Guidelines analysis, the list-based development would generate approximately 80,000 p.m. peak-period person trips, about 49,000 of which would occur in the p.m. peak hour. Table 8, page 94 compares projections of year 2000 travel demand from the list-based analysis and the Downtown Plan DEIR. Because the list contains development outside the C-3 District and the Downtown Plan DEIR makes specific projections for C-3 District development only, the travel components shown in Table 8 are for the C-3 District only. Travel from the C-3 component of the list (about 13 million gsf of net new office space and 0.4 million gsf of retail space) has been compared with the projections from the Downtown Plan DEIR for Alternatives 1 to 5 and the Downtown Plan. As shown in Table 8, travel demand from the Alternatives in the Downtown Plan EIR ranges from Alternative 1 (about 17% higher than the Downtown Plan) to Alternative 4 (about 5% lower than the Plan). Although there is a range, the spread is within the level of accuracy of the transportation analysis $\pm$ 10%), and thus, statistically, the transportation impacts of the Alternatives are equivalent to those of the Downtown Plan.

Several anomalies are apparent in the data shown in Table 8. While the list's C-3 component generates about half as much travel as do the Downtown Plan and the five Alternatives, the list-based analysis generates travel demands within San Francisco that exceed those generated by the Downtown Plan and the Alternatives. Total travel amounts differ because the list has a different time frame than the Downtown Plan DEIR. The Downtown Plan DEIR established 1984 as the baseline year and 1990 and 2000 as target study years. Growth estimates were made on the basis of projections for each of the target years for the range of alternatives. The projects included on the cumulative list

TABLE 8

COMPARISON OF OUTBOUND P.M. PEAK-HOUR CUMULATIVE TRAVEL DEMAND FOR THE C-3 DISTRICT - PERSON TRIPS

	March 10, 1984 Cum. Dev. List[1]	Downtown Plan (1984-2000)[2]	Alternative 1 (1984-2000)[2]	Alternative 2 (1984-2000)[2]	Alternative 3 (1984-2000)[2]	Alternative 4 (1984-2000)[2]	Alternative 5 (1984-2000)[2]
Work Person Trips	22,100	41,400	47,600	46,200	44,400	39,100	39,700
Other Person Trips	8,200	12,100	14,700	14,200	13,400	11,800	11,800
Total Person Trips	30,300	53,500	62,500	60,500	57,900	51,000	51,600
Muni							
Northeast	900	1,600	1,700	1,600	1,600	1,700	1,700
Northwest	3,700	1,800	2,000	1,900	1,800	1,800	1,800
Southwest	3,100	1,100	1,100	1,000	900	800	800
Southeast	600	1,100	1,000	1,000	1,000	600	700
BART							
East Bay	4,500	11,800	13,300	13,100	12,700	11,300	11,300
Peninsula	1,900	2,400	2,800	2,700	2,600	2,300	2,300
AC Transit	1,700	200	600	500	300	-100	-100
GGT							
Bus	1,100	3,200	3,700	3,600	3,500	2,700	3,100
Ferry	300	800	800	800	800	800	800
SamTrans	300	1,200	1,300	1,300	1,200	1,000	1,100
SPRR/CalTrain	500	1,800	2,000	1,900	1,800	1,700	1,700
Regional Auto							
Golden Gate Bridge	370	410	630	590	540	390	370
Bay Bridge	960	1,250	1,550	1,540	1,510	1,060	1,110
U.S. 101	420	470	650	620	590	400	400
Interstate 280	420	470	650	620	590	400	400

[1] Travel from only those listed projects that are located inside the C-3 District. The list also contains development located in the greater downtown area outside the C-3 District; travel from those projects has been included in the list-based travel shown in the remainder of this section.

[2] Travel from the C-3 District only. The analysis used in the Downtown Plan DEIR assumes regional travel growth not shown in the above data but discussed in the remainder of this section.

Source: Environmental Science Associates, Inc.

span a period from 1984 to the early or mid-1990's, when completion of all projects on the list or a similar amount of square footage would be expected.[7] Thus, results of impact analyses using these two forecasting methods are not directly comparable.

Variations in travel by trip purpose (work, other) and travel mode between the list-based method and the Downtown Plan DEIR method can be explained by differences in the methodologies and data bases used to forecast the travel demand. Variation in trip purpose data is the product of the trip generation process used. The list-based analysis uses single-use trip generation data to estimate total travel by adding up trip generation estimates from all the individual buildings on the list. Single-use trip generation rates do not incorporate any discounting factors to account for trips going from one building to another within the Downtown. Studies for the Downtown Plan DEIR have confirmed that there is considerable travel between land uses in the downtown area. The list-based analysis adds every trip as if it were a new trip in or out of the downtown.

The Downtown Plan DEIR travel demand model has refined the trip generation process by incorporating discounting factors that adjust the trip generation rates to give travel to and from the C-3 District as a whole; it does not include trips internal to the C-3 District. Thus, while the Downtown Plan Draft EIR process predicts proportionately more work travel than the list-based analysis, the DEIR forecasts more closely resemble actual travel demand from downtown development.

Different travel mode distributions are caused by refinements in the regional distribution and modal split analyses in the Downtown Plan DEIR process. The list-based analysis assumes a static (unchanging over time) regional distribution and static modal splits. The Downtown Plan DEIR analysis has incorporated changes in both the regional trip distribution (reflecting projected housing availability) and the modal splits (reflecting projected availability of roadway and transit capacity in the future).

The list-based analysis shows more San Francisco travel (as shown by larger Muni numbers for the list-based analysis in Table 8) than does the Downtown Plan DEIR because the latter analysis projects declining housing availability in the City. Thus, as the downtown work force increases, the percentage of workers living in San Francisco decreases. The list-based analysis assumes that the percentage of workers living in San Francisco remains constant over time and thus overestimates the number of future employees living in the City and underestimates the number of regional commuters.

Other modal travel differences, particularly in regional auto and AC Transit usage, result from the refined modal split process used in the Downtown Plan DEIR. The list-based analysis assumes that the modal split will remain constant over time; thus, the list-based analysis is insensitive to the abilities of transit agencies and regional roadway systems to serve future demand. The Downtown Plan DEIR analysis has assumed that the modal split would change over time to reflect the increasing congestion at the regional screenlines. Thus, because the Bay Bridge eastbound is at or near capacity in the p.m. peak hour, the Downtown Plan DEIR modal split projects proportionately less auto demand to the East Bay than does the list-based analysis. Similarly, for AC Transit, the Downtown Plan DEIR recognizes that current regional transit policy dictates no increases in AC Transit transbay service and thus, AC Transit's ability to carry additional riders transbay will be restricted in the future. The changing modal split is a refinement that allows the travel model to more accurately forecast travel demand. Thus, the Downtown Plan DEIR results represent a more accurate level of projection than has been possible to achieve using other methods and data available to date.

There are various other factors that cause differences in the travel demand projections. The Downtown Plan DEIR and the Consultant's Report on Downtown Growth Management Alternatives (Environmental Science Associates, 1983) contain extensive discussions of the analyses and data used to forecast employment, land use and transportation demand.

2. Traffic

The traffic impacts analysis has been conducted on two levels: one level of analysis considered impacts at the regional screenlines, the second considered impacts at intersections in and near the downtown.

Analysis of traffic conditions at the regional screenlines has been conducted for both the p.m. peak hour and the two-hour p.m. peak period. The a.m. peak traffic conditions at regional screenlines meter the amount of traffic that reaches the downtown from outside the City. This analysis has considered p.m. peak conditions. P.M. conditions are usually most severe on freeways and streets within San Francisco, whereas a.m. peak conditions are most severe outside the City.

Traffic demand at the regional screenlines in 1984 during the p.m. peak hour used between 90% and 100% of the available capacity on the freeways and bridges (see Table 9,

TABLE 9

OUTBOUND REGIONAL AUTO DEMAND

Regional Auto Corridor	Capacity	1984 Demand	DOWNTOWN PLAN (2000) Demand	DOWNTOWN PLAN (2000) Project Percent	1984 + CUMULATIVE LIST Demand	1984 + CUMULATIVE LIST Project Percent
Peak Hour						
Bay Bridge (I-80)	9,000	8,540	9,790	0.1	9,480	0.1
Golden Gate Bridge (US-101)	7,200	6,740	7,150	---	7,100	---
U.S. 101 (south of Harney Way)	8,000	7,390	8,400	---	7,800	---
I-280 (between Alemany Blvd. and San Jose Avenue)	8,000	7,610	8,650	---	8,020	---
Peak Period						
Bay Bridge (I-80)	18,000	17,880	19,330	---	18,460	---
Golden Gate Bridge (U.S. 101)	14,400	13,870	14,850	---	15,380	---
U.S. 101 (south of Harney Way)	16,000	14,200	16,530	---	14,870	---
I-280 (between Alemany Blvd. and San Jose Avenue)	16,000	13,620	15,890	---	17,290	---

Source: Environmental Science Associates, Inc.; Environmental Impact Planning Corp.

page 97). Although the Bay Bridge's capacity is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour demand shown in Table 9 represents the effective capacity. The demand figures shown in Table 9 for 1984 for the one-hour and two-hour periods are averages of several days; thus, values for individual days may be different than the average.

Peak-hour freeway operating conditions in 1984 were generally in service levels D to E conditions, which would indicate unstable flows in the 35 mph to 45 mph range. Table B-4, Appendix B, page A-25 of this report, shows the service levels for freeway operations. Peak-of-the-peak conditions within the peak hour would be expected to be worse than the hourly conditions because of surges in demand during the peak hour. Conditions during the peak period at the screenlines would be similar to those experienced during the peak hour.

As shown in Table 9, demand during the peak hour in the East Bay and Peninsula corridors would be expected to increase about 15% between 1984 and 2000. Peak-hour demand in the North Bay corridor would increase by about 6% between 1984 and 2000. The project would generate about 40 p.m. peak-hour vehicle trips and about 65 peak-period vehicle trips.[8] The project travel demand, about 40 p.m. peak-hour vehicle trips, would represent a maximum of about 0.1% of the total demand in the year 2000. Both the East Bay and Peninsula corridors would have excess peak-hour demand that would not be met during the peak period. The North Bay corridor would have excess demand in the peak period. Excess auto demand would result in either a spreading of the demand into the hours around the peak period or in increased transit and ridesharing use should additional transit service (beyond that assumed to occur by the year 2000) or incentives be provided.

Operating conditions at the regional screenlines would be at or near capacity, in service level E. Traffic flow conditions would be expected to be very unstable and could experience temporary flow interruptions throughout the peak period. Peak-of-the-peak conditions would be prevalent during the peak hour and may extend into the peak period.

As shown in Table 9, the list-based cumulative analysis, while not comparable with the year 2000 data, produces similar estimates of future demand. The results reflect the tendency of the list-based method to overestimate regional auto travel.

Local traffic impacts have also been asssessed for the intersections of Mission/First and Mission/Beale. These intersections carry downtown traffic destined for freeway ramps. As shown in Table 10, these intersections are at unstable capacity flows during the p.m. peak hour. With cumulative development, the intersections' operation would degrade to jammed E-F conditions.

TABLE 10

EXISTING AND PROJECTED INTERSECTION SERVICE LEVELS

	Service Levels			
Intersection	1981/82	1984	Downtown Plan (1990)	Downtown Plan (2000)
Mission/First	E	E	E	F
Mission/Beale	D	E	E	F

Source: San Francisco Department of City Planning, Draft EIR for The Downtown Plan, EE 81.3, March 16, 1984.

Peak-hour conditions are expected to deteriorate at all intersections by the year 2000. Expanded areas of traffic congestion would disrupt surface Muni operations. If the mitigation measures for transportation are implemented, the intersection operating conditions would be improved.

3. Transit Service

The transit agencies serving downtown San Francisco carry approximately 60% of the peak-period employee work travel as well as about 20% of other peak-period travel. P.M. peak-hour and peak-period loadings on the local and regional transit routes were near capacity for some of the routes in 1984 (see Table 11, page 100). The values shown in Table 11 are sums over the peak hour and the two-hour peak period. Within the peak hour,

TABLE 11

OUTBOUND REGIONAL TRANSIT DEMAND AND SERVICE LEVELS

Transit Agency	1984 Demand	1984 P/S[1]	1984 LOS[2]	DOWNTOWN PLAN (2000) Demand	DOWNTOWN PLAN (2000) P/S	DOWNTOWN PLAN (2000) LOS	Project Percent[3]	1984 + CUMULATIVE LIST Rounded Demand	1984 + CUMULATIVE LIST P/S	1984 + CUMULATIVE LIST LOS	Project Percent[3]
Peak Hour											
Muni											
Northeast	7,100	1.16	D	8,800	1.05	D	0.1	8,700	1.04	D	0.1
Northwest	8,200	1.26	E	10,100	1.25	D	0.2	12,900	1.59	F	0.2
Southwest	13,500	1.45	E	16,600	1.42	E	0.1	17,500	1.50	E	0.1
Southeast	5,300	1.06	D	7,400	1.01	D	0.1	6,400	0.88	C	0.1
BART											
East Bay	16,100	1.53	F	27,900	1.42	E	0.1	21,900	1.12	D	0.1
Peninsula	7,700	1.10	D	10,100	1.06	D	0.1	10,200	1.07	D	0.1
AC Transit	9,100	0.94	C	10,500	1.08	D	0.1	11,300	1.16	D	0.1
GGT Bus	5,300	1.00	C	8,500	0.91	C	0.1	6,800	0.73	B	0.1
GGT Ferry	800	0.57	B	1,500	0.38	A	--	1,100	0.28	A	--
Tiburon Ferry	200	0.40	A	300	0.60	B	--	200	0.40	A	--
SamTrans	1,900	1.12	D	3,100	1.19	D	0.2	2,300	0.88	C	0.2
CalTrain (SPRR)	3,100	0.61	B	4,900	0.79	C	0.1	3,800	0.61	B	0.1

TABLE 11 (continued)

Transit Agency	1984 Demand	1984 P/S[1]	1984 LOS[2]	DOWNTOWN PLAN (2000) Demand	DOWNTOWN PLAN (2000) P/S	DOWNTOWN PLAN (2000) LOS	DOWNTOWN PLAN (2000) Project Percent[3]	1984 + CUMULATIVE LIST Rounded Demand	1984 + CUMULATIVE LIST P/S	1984 + CUMULATIVE LIST LOS	1984 + CUMULATIVE LIST Project Percent[3]
Peak period											
Muni											
Northeast	12,600	1.06	D	15,500	0.95	C	0.1	15,200	0.93	C	0.1
Northwest	13,100	1.13	D	15,300	1.05	D	0.2	20,600	1.41	E	0.2
Southwest	23,300	1.31	E	28,700	1.29	E	0.1	29,800	1.34	E	0.1
Southeast	9,100	1.00	C	12,100	0.88	C	0.1	11,000	0.80	C	0.1
BART											
East Bay	25,800	1.54	F	44,100	1.40	E	0.1	35,200	1.12	D	0.1
Peninsula	11,300	0.80	C	14,600	0.77	C	0.1	15,400	0.81	C	0.1
AC Transit	14,000	0.95	C	17,000	1.16	D	0.1	17,500	1.19	D	0.1
GGT Bus	7,600	0.90	C	12,200	0.81	C	0.1	10,000	0.67	B	0.2
GGT Ferry	1,000	0.56	B	1,700	0.33	A	--	1,500	0.29	A	--
Tiburon Ferry	300	0.60	B	500	1.00	C	--	400	0.80	C	--
SamTrans	2,900	1.12	D	4,500	1.15	D	0.2	3,600	0.92	C	0.3
CalTrain (SPRR)	4,500	0.68	B	6,200	0.77	C	0.2	5,500	0.68	B	0.2

[1] Passengers per Seat is the ratio of total demand to seated capacity.

[2] Level of Service is scale ranging from A to F that relates P/S ratios to passenger loading conditions on transit vehicles.

[3] The percent of demand generated by the project.

Source: Environmental Science Associates, Inc.

there are periods of time when the loading ratios would be higher than for the hour (peak-of-the-peak conditions). Individual transit vehicle loadings vary on a day-to-day basis because of fluctuations in ridership (demand) and because of variations in operating conditions caused by traffic congestion, equipment availability, or system breakdowns. See Figures B-1 to B-3, pages A-26 to A-28, for photographs of typical Muni peak-loading conditions.

The level of service concept, similar to that developed for highway operations, has been applied to both bus transit and rail transit. Passengers per seat (i.e., total passengers divided by the number of seats) has been used as the measure of effectiveness to define the various level of service ranges. Table B-3, Appendix B, page A-22 of this report, shows the relationship between service levels and passengers-per-seat ratios for bus transit systems.

During the p.m. peak hour in 1984, all of the transit agencies were operating in service level D or better with the exception of BART East Bay, where conditions were at service level F, and Muni in the northwest and southwest corridors, where operations were in service level E. Although BART is a rail transit service, its cars have a unique seating configuration. The ratio of total capacity to seated capacity for a BART car (about 1.5) is equivalent to the ratio for bus transit; thus the bus transit service level scale is applicable to BART. Service level F on BART is in the range of 1.5 to 1.8 passengers per seat. Because BART operates on a centrally controlled system, the "crush" loadings would not increase passenger loading times (as would be the case on a bus transit system) but would primarily decrease passenger comfort.

The rail transit service level scale is based on typical light rail transit systems where total capacity is about 2.0 to 2.2 times seated capacity. The rail transit service level scale would be applicable to Muni Metro. Muni Metro provides about 50% of the seated capacity to the southwest corridor. Because Metro vehicles can accommodate higher loadings (2.0 passengers per seat) than buses or trolleys (1.5 passengers per seat), the service level would be somewhat better than shown in Table 11. An exact estimate of Metro loadings is not possible without analysis of the Metro service separate from the remainder of Muni service to the southwest; such analysis would be beyond the ability of the travel demand analysis to accurately predict over time.

With regard to the Muni data presented in Table 11, the Muni routes have been aggregated on a corridor basis and thus include two-directional travel on some routes that serve the

northeast and southeast corridors. The Muni numbers cannot be added over the corridors to get a total for the system. Neither can capacity be shifted from one corridor to another. For instance, capacity in the northeast corridor depends, in large part, on capacity that serves the southeast portion of the City. The 15, 19, 25, 30, 30X, 30AX, 30BX, 32, 41, 42, and 47 lines pass through the downtown in two directions. Service on the above lines is interdependent. Thus, increases or decreases in capacity on one of the above lines directly affects service in the opposite direction. Service to the northeast and northwest corridors is also interconnected as lines serving the northwest must pass through the northeast corridor and, thus, serve both areas. Muni ridership and capacity have been apportioned between both areas.

Passengers-per-seat ratios are only one measure of service adequacy. The obvious constraints of operating on heavily used streets in and around the downtown cause transit vehicle bunching, loss of running time and lack of schedule adherence, which inevitably reduces service, reliability, and ultimately, capacity. In some respects this would not be evident from simple quantitative analysis. In addition to these inherent inefficiencies, there are other factors that would affect overall transit capacities. They include extreme variability in daily and seasonal ridership for which absolute capacity must be available, as well as transit riders who remain uncounted because their transit trips both start and end within the screenlines used in this analysis. Daily fluctuations in fleet availability also affect system capacity.

Further, policy considerations dictate operating conditions on certain lines where minimum headways have been established to maintain transit service to areas where service is not warranted on the basis of ridership alone. When averaged together, the ridership data from these lines may slightly distort overall ridership conditions.

P.M. peak-period conditions on transit in 1984 are equivalent to or better than peak-hour conditions. In some cases, where demand remains at peak-hour levels during the two-hour period, the passengers-per-seat ratios in the two-hour period are higher than in the one-hour period. This anomaly is the result of transit agencies providing express (or additional) service during the peak hour but not during the entire peak period. An example of this type of operation may be seen on BART, where three extra trains operate transbay in the peak hour but not in the rest of the peak period. Another factor involved is the distribution of demand (ridership) at uniformly high levels over the peak period.

Both transit demand and capacity have been assumed to increase between 1984 and 2000. The discussion of transit capacity increases for each agency are based on the Five-Year Plans and Capital Improvement Plans of the various transit agencies and are discussed in Appendix J of the Downtown Plan DEIR, pages J.25-J.26. This material, which is discussed below and summarized in Table 11, is incorporated by reference.

Future transit demand and loadings for the Downtown Plan in the year 2000 and for 1984 plus the cumulative list are shown in Table 11 for both the peak hour and the peak period. The transit demand from the project would range between 0.1%-0.3% of the total travel demand on the individual transit agencies in the year 2000. Peak-hour transit demand on Muni in the year 2000 would increase about 21% over 1984 levels in the northeast, northwest and southwest corridors. Muni demand in the southeast corridor would increase about 33% between 1984 and 2000. Peak-hour demand on the other agencies would increase between 30% and 70% between 1984 and 2000.

Peak-period increases in demand would be between 15% and 70% during the 1984 to 2000 period. Overall peak-period travel would be expected to increase about 30% between 1984 and 2000. Peak-hour and peak-period passenger loadings would be worse than in 1984, although most systems would operate in acceptable conditions (service level D or better). However, BART East Bay and Muni southwest would be in service level E during the peak hour and the peak period.

Although the data in Table 11 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. As shown in Table 8, total transit demand under Alternative 1 would be about 12% higher than under the Downtown Plan while transit demand from Alternative 4 would be about 9% lower than the Plan.

It is important to note that the Five-Year Plan improvements for the transit system are designed to not only provide for future demand increases, but also to improve service levels from existing conditions. In order for new vehicle acquisitions to represent expansion of system capacity and not simple replacement, operating revenues would similarly need to be increased. During the year 2000 peak hour, Muni southwest and BART East Bay service would exceed the desirable passengers-per-seat ratios of 1.25 and 1.30, respectively.[9] Although transit demand in the two corridors in excess of the

desirable loadings would be accommodated under crowded conditions and thus would not constitute excess demand, demand in excess of the desirable loadings would mean that additional transit service over that assumed to occur by 2000 would need to be provided to allow transit operations in the two corridors to meet the goals set by Muni and BART. To meet the goal of 1.25 passengers per seat in the peak hour, Muni would have to increase service by about 14% in the southwest corridor over the amount of service assumed to occur in 2000. To meet the goal of 1.30 passengers per seat, BART would have to provide an East Bay service increase of 14% over the amount of service assumed to occur by 2000.

If transit service were not increased beyond the amounts assumed to occur by the year 2000, transit operations (in terms of passenger comfort) would be slightly better than 1984 conditions. Peak-hour and peak-period passengers-per-seat ratios would be lower than 1984 ratios even though service (in some corridors) has been assumed to increase as much as 80% between 1984 and 2000.

Alternatively, if the Downtown Plan's goals regarding increased transit use are achieved, and the proposals in the Plan regarding transit service improvements were to be fully developed and in place, the impacts on transit agencies would be less than described above. If the goals were achieved, transit agencies would experience greater levels of demand than under this analysis but overall passenger loadings would be lower (and within desirable levels) because of increased transit service availability that would come about if the proposals stated in the Plan are developed.

Also shown in Table 11 is an analysis of the conditions that would result from adding travel from the cumulative list to the 1984 base data, as specified in the Guidelines. While not specifically comparable, estimates calculated by adding the travel from the cumulative list to the 1984 base data produce similar results to those from the Downtown Plan, although the overestimation of San Francisco travel is present in the list-based results, as explained above.

4. Parking Impacts

The project site lies withn the "Downtown Core," designated in the City's Comprehensive Plan as an area "where priority must be given to the efficient and pleasant movement of business clients, shoppers and visitors; where a continuing effort should be made to

improve pedestrian, transit and service vehicle access and circulation where priority for the use of limited street and parking space within this core should be available for these functions; and where a continuing effort should be made to reduce the impact of the private commuter vehicle."[12] The project is located in a C-3 district where off-street parking is not required by the Planning Code; the project would not contain any off-street parking spaces.

Existing off-street parking spaces are 95% to 100% occupied in the project area.[13] Because a vacancy rate of 5% would be expected as a result of parking space turnover, the existing parking is essentially saturated.

Adjacent to the site, the Stevenson Street curb frontage includes a yellow loading zone approximately 50 feet in length and a two-hour parking zone approximately 30 feet in length. Curb parking (two-hour limit) along the south side of Stevenson Street is essentially occupied during the day (8 a.m. - 5 p.m.). Additional vehicles park illegally on the north sidewalk along Stevenson.

The project's parking demand has been calculated on the basis of expected existing trip generation and modal split characteristics.

- 975 daily work trips x 22%[3] auto/1.6[3] persons per auto /2 one-way trips per auto = 67 long-term spaces.
- 1,065 daily non-work trips x 10% auto[3]/1.3[3] persons per auto /2 one-way trips per auto/5.5 turnovers daily[12] = 7 short-term spaces.
- Total project demand = 74 spaces.

With the added parking demand in an area of saturated parking, motorists would seek parking further from the project site or would shift travel patterns to transit or ridesharing. An existing 300 space garage at 71 Stevenson is essentially fully occupied. Planned development of that site would remove the parking and the displaced vehicles would contribute to this relocation of parking demand, or shift to other modes.

The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District.[12] The short-term parking demand, while representing about

25% of the equivalent daily demand, is about 65% of the daily vehicle travel. Although the equivalent daily demand would leave about 10% of the parking supply vacant, surges in short-term demand (more travel in one period than in another period) can cause temporary localized overloads of parking facilities within various portions of the downtown, even though parking may be available elsewhere in the downtown.

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent less than 0.3% of the total demand from the C-3 District. The parking supply has been assumed to be about 51,000 spaces. There would be a parking deficit of about 6,000 spaces in the year 2000 if vehicular demand occurs as projected. However, as shown in Table 9, the analysis for the year 2000 forecasts excess auto demand in the peak hour and the peak period. If the excess demand is accommodated on transit or ridesharing, then the overall parking demand would decrease from the above estimate by about 2,300 spaces.

Alternatively, if the goals of the Downtown Plan are met, total parking demand in the year 2000 would be about 48,100 equivalent daily spaces, an increase of six percent over 1984. If the goals were achieved, there would not be a parking deficit.

The list-based analysis shows future demand for 11,400 spaces from projects in the C-3 District, which would generate a total demand for 56,700 spaces. While similar to the 58,000-space (unmitigated) demand from the Downtown Plan, the list-based demand is not comparable for the reasons stated above, particularly because the list-based analysis assumes a static modal split and thus overestimates future auto demand.

Off-street freight loading needs (as per Planning Commission guidelines)[13] have been calculated as follows:

-	169,600	sq.ft. gross office area @ 0.1/10,000	=	1.7 spaces
-	9,800	sq.ft. gross retail area	=	0 spaces
		Total	=	1.7 spaces

The project would include two freight loading spaces. If it is assumed that 20% of the

retail area were developed in restaurant use, this area (2,000 sq.ft.) would require 0.34 freight loading spaces. The total requirement would remain at about two spaces, equal to the proposed two loading docks.

5. Pedestrian Facilities

The Stevenson Street pedestrian traffic uses the south sidewalk and portions of the north sidewalk (illegally parked vehicles block portions of the north sidewalk). Pedestrian traffic peaks during the midday and the pedestrian flows of 800 persons per hour are within the unimpeded range -- defined as minor pedestrian conflicts (see Appendix B, page A-19 for pedestrian flow definitions. This calculation reflects about 600 peak-hour pedestrians on the south sidewalk with an effective sidewalk width of six to eight feet.

Pedestrian traffic on Ecker Street peaks during the 4:30-5:30 p.m. period when about 1,300 pedestrians use this route.[11] Ecker Street is closed to vehicles and pedestrians tend to utilize the entire available street width. (South of Stevenson, Ecker is approximately ten feet wide.) Pedestrian flow in this area is in the "impeded" range -- a high indirect interaction between pedestrians but generally acceptable flow conditions. This calculation reflects the 1,300 pedestrians within the ten-foot (curb-to-curb) width of Ecker Street.

Pedestrian flows are heavy at the Mission/First intersection.[3] Conditions on sidewalks and in crosswalks are "impeded" and these pedestrian conditions have a secondary impact on traffic flow (as discussed in the street network section).

All of the project's 215 peak-hour (p.m.) person trips would be pedestrian in the project area (traveling to transit carriers and off-site parking facilities). Based upon trip generation research, it is estimated that about 200 pedestrian trips would occur during the midday peak hour (during the 11:00 a.m. - 2:00 p.m. period).[1] With these volumes, flows along Stevenson and Ecker would remain "unimpeded" and "impeded" respectively.

Pedestrian levels in the project vicinity would be affected by cumulative impacts associated with the approved 71 Stevenson project and Lincoln Plaza, currently under review (see Figure 9, page 20). The 71 Stevenson building will feature a pedestrian pathway between Jessie and Stevenson Streets and it is expected that pedestrians from

Lincoln Plaza would use this pathway to Market Street. With volumes from the project and local cumulative development, flows along Stevenson and Ecker Streets would degrade to the "impeded" range.

Cumulative development (to the year 2000) in the project area would also increase pedestrian flows by about 31% and flows along Stevenson and Ecker would remain "impeded."[3] At Mission/First pedestrian flows would remain impeded. The project flows would represent about 5 - 10% of the future flows along Stevenson and Ecker Streets.

6. Construction Activity

Based upon the project's construction costs and 15- to 18-month construction schedule, it is estimated that an average of approximately 250 construction workers would be employed on-site over the period of time (see Section IV.M., Employment, Housing and Fiscal Factors, page 122). If all of the construction employees drive with limited ridesharing and similar work shifts, about 200-250 auto trips would be generated during the employees' evening commute period. Because construction employees tend to work earlier shifts, it is likely that only a portion of this travel would occur during the 4:30-5:30 p.m. citywide peak hour. The construction employee trips would not degrade traffic service levels on the adjacent street network. Employees would seek parking in the project area, competing with other employees and visitors for the limited parking currently available. Construction activity could also encroach onto sidewalk and/or street areas, disrupting pedestrian flows. During demolition of the existing 49 Stevenson building, it would probably be necessary to temporarily close Ecker Street for less than one week.[14] Specific safety measures and scheduling would be authorized by the Department of Public Works (DPW), which could require demolition on weekends to lessen pedestrian inconvenience. With only one lane on Stevenson Street, any encroachment beyond the parking lane would effectively close Stevenson to through traffic.

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[1]San Francisco Department of City Planning, Guidelines for Environmental Review (Transportation Impacts), July 1983.

[2]Caltrans, Tenth Progress Report on Trip Ends Generation, July 1975.

[3]San Francisco Department of City Planning, Office of Environmental Review, Draft Environmental Impact Report for The Downtown Plan, EE81.3, March 16, 1984. This document is an analysis of projected growth in the C-3 District to the year 2000 under the Downtown Plan and five alternatives. The transportation analysis in the DEIR includes projections of future modal splits for work and non-work travel for the p.m. peak period, peak hour and daily time periods. This document is on file and available for public review at the Office of Environmental Review, 450 McAllister Street, Fifth Floor.

[4]The Downtown Plan EIR contains about 50 pages of text devoted to the description of transportation impacts in the greater downtown area, as well as an additional 30 pages of text describing transportation mitigation measures. The information in this Draft EIR is not intended to be a comprehensive summary of the transportation analysis in the Downtown Plan DEIR, but summarizes portions relevant to the proposed project and its contribution to cumulative impacts. For details and assumptions used to arrive at the data and results presented in the Downtown Plan DEIR, see Sections IV.E, Transportation Setting and Impact, and V.E, Transportation Mitigation, of the Downtown Plan Draft EIR, which are incorporated by reference into this report and summarized in the text as appropriate.

[5]Metropolitan Transportation Commission, Traffic Survey Series A-48 and MA-60, Spring 1977 and Spring 1983.

[6]The analysis of historic trends in travel patterns is from the following sources: Metropolitan Transportation Commission, Travel Observations of the Bay Bridge Corridor, October 21, 1981; Homburger and Dock, Trends in Traffic Patterns at the Bay Bridge and Caldecott Tunnel, U.S. Department of Transportation, DOT-BIP-WP-32-3-77, July 1977; telephone survey of 500 drivers conducted in April 1980 by Golden Gate Transit, data supplied by Alan Zahradnik, Transportation Planner, on February 16, 1983; Office of the Auditor-Comptroller, Comparative Record of Traffic for the Month of November, May 27, 1937 through November 30, 1982, Golden Gate Bridge, Highway and Transportation District; San Francisco Municipal Railway Planning Division, Projections of Future Muni Demand and Vehicle Requirements, October 1982; San Mateo County Transit District, SamTrans Five-Year Transportation Development Plan: 1983-1988, April 1983; California Department of Transportation, CalTrain Caltrans/Southern Pacific Peninsula Train Service Five-Year Plan 1983-1988, July 1983; and traffic volume counts from Department of Public Works, Bureau of Engineering, Division of Traffic Engineering and from 1983 San Francisco Cordon Count, JHK and Associates, July 1983.

[7]See Downtown Plan DEIR, pages II.9-II.11 for a comparison of the cumulative list projections with those of the Downtown Plan DEIR.

[8]JHK and Associates, 1983 San Francisco Cordon Count, July 1983. The Cordon Count collected data for persons and vehicles entering and leaving the Metropolitan Traffic District (MTD). The MTD roughly corresponds to District 15 shown on Figure II.C.2. of the Downtown EIR Consultant's Report. The 1983 Cordon Count found an overall vehicle occupancy of 1.40 persons per vehicle in the downtown area.

[9]San Francisco Municipal Railway, Short-Range Transit Plan 1983-1988, July 1983. Bay Area Rapid Transit District, Short Range Transit Plan for the Five-Year Period July 1983 Through June 1988, August 1983.

[10]S. F. City Planning Commission, Revisions to the Transportation Element of the Master Plan Regarding Parking, adopted by Resolution 7647 on January 20, 1977.

[11]San Francisco Department of City Planning, Final EIR: 71 Stevenson Street (81.493E), certified June 16, 1983.

[12]The parking survey data and other supporting calculations and data used in the transportation impact analysis are on file and available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, Fifth Floor.

[13]Guidelines adopted by San Francisco Planning Commission on January 21, 1982, described in Resolution No. 9286; guidelines based on findings in the San Francisco Center City Pedestrian Circulation and Goods Movement Study, September 1980, Wilbur Smith and Associates.

[14]Estimate by George W. Nickelson, EIP traffic engineer, based upon project construction costs.

G. AIR QUALITY

Construction activities would generate pollutants in the project vicinity. Trucks and equipment would release exhaust that would affect neighboring buildings during construction hours. Site preparation and construction activities would generate suspended particulate matter (TSP). Although emission factors upon which to base estimates of the resulting atmospheric concentrations of particulates are not available, violations of the state 24-hour TSP standard may result in the immediate vicinity of the project.

The California Health and Safety Code requires that measures be taken to minimize dust generation, specifically, watering of demolition materials and soils. An effective watering program (complete coverage twice daily) can reduce emissions by about 50%. The project sponsor would require the contractor to implement a twice-daily watering program, which would reduce airborne construction dust and particulates by about 50% and reduce the likelihood of exceeding the state and federal standards.

Upon completion, the project would affect air quality in two ways: emissions would be generated by project-related traffic and by combustion of natural gas for space and water heating. Transportation sources would account for over 95% of project-related emissions.

Direct atmospheric emissions from the operation of the proposed project would result from the combustion of natural gas on-site for water and space heating. Natural gas is a relatively clean-burning fuel; therefore, no visible plume would occur. Exhaust gases would be emitted at rooftop level and would be diluted to concentrations well below the ambient air quality standards before reaching ground level. Projected daily emissions of pollutants in 1990 from project-generated traffic, and from cumulative development traffic, based on the March 10, 1984 list of cumulative office development in downtown San Francisco (Appendix E, Table E-1, pages A-62 to A-66, are shown in Table 12 (page 113 of this report). These emissions are also compared in the table to emissions projected for C-3 District development by the Downtown Plan Draft EIR, and to total emissions projected for the entire Bay Area by the 1982 Bay Area Air Quality Plan.

Motor vehicle trips associated with downtown development would emit more nitrogen oxides (NOx) than hydrocarbons (HC), both of which are chemical precursors of ozone, while emissions from the building's natural gas combustion would consist primarily of

TABLE 12

PROJECTED DAILY POLLUTANT EMISSIONS

Pollutant	Emissions (tons per day)[1] Project 1990	Cumulative List 1990[2]	Downtown Plan[3] 1990	Downtown Plan[3] 2000	Bay Area[4] 1990	Bay Area[4] 2000
Carbon Monoxide	.06	17.0	6.8	6.6	1,952	1,883
Hydrocarbons	.005	1.4	0.6	0.6	428	428
Nitrogen Oxides	.006	1.8	0.8	0.8	558	610
Sulfur Oxides	.001	0.2	0.1	0.1	194	233
Particulates	.009	2.7	1.1	1.3	562	649

[1] Project, Cumulative List, and Downtown Plan emissions calculated using BAAQMD, EMFAC6C vehicular emission factors. Emissions of CO, HC and NOx include an assumed six minutes of idling time per vehicle trip. Emissions of TSP include dust entrained from roadway surfaces.

[2] Incremental emissions of downtown area development based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984 (Table E-1, pages A-62 to A-65 of this report).

[3] Incremental emissions of C-3 District development, per Downtown Plan Draft EIR, Table IV.I.2, page IV.I.12.

[4] Cumulative total emissions of Bay Area development, per ABAG, BAAQMD, MTC, 1982 Bay Area Air Quality Plan.

Source: EIP Corporation

NOx. On the basis of the Livermore Regional Air Quality Model (LIRAQ) ozone simulations conducted for the 1982 Bay Area Air Quality Plan, NOx emissions in excess of HC emissions could lead to a slight decrease in peak ozone concentrations in the Bay Area. This relationship between NOx and HC emissions would hold both under the cumulative list scenario and the Downtown Plan scenario shown in Table 13, below. Thus, emissions of HC and NOx generated by the project and by cumulative development would not increase the Bay Area ozone concentrations that would otherwise occur.

TABLE 13

PROJECTED WORST-CASE CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

Intersection	Averaging Time	Concentrations (ppm)[1] 1984	Cumulative List 1990[2]	Downtown Plan[3] 1990	Downtown Plan[3] 2000
Mission/First	1-hour	13.1	9.7	9.6	8.6
	8-hour	9.5	6.9	6.8	6.5
Mission/Beale	1-hour	11.9	8.8	10.0	8.8
	8-hour	8.5	6.2	6.4	5.3

[1]Calculations for all four scenarios were made for worst-case (poor dispersion) meteorology, using the modified linear rollback method. Background concentrations were calculated to be 7.3 ppm for one hour and 5.6 ppm for eight hours in 1984, 5.4 ppm for one hour and 4.1 ppm for eight hours in 1990 and 4.8 ppm for one hour and 3.7 ppm for eight hours in 2000. No excesses of ambient standards are projected to occur in 1990 or 2000. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight-hour state and federal standard is 9 ppm.

[2]Based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984, Table E-1, page A-62).

[3]Based on growth projection methodology contained in Downtown Plan Draft EIR, Table IV.I.3, page IV.I.16..

Source: EIP Corporation

It is possible, however, that excess NOx emissions could increase ozone and/or nitrogenous oxidant concentrations further downwind, outside the Bay Area. In addition, incremental NOx emissions generated by the project and by cumulative development could lead to violations of the NO_2 standard with concomitant health effects; could reduce visibility; and, to a relatively small extent, due to the small magnitude of the increase and to dilution over time and distance, could increase acid rain further downwind, outside the Bay Area.

CO concentrations are predicted to be less in 1990 and subsequent years than in 1984. In 1990, traffic volumes in the downtown area would increase by about 8%, area-wide, over 1984 volumes. However, in 1990, the average vehicle is expected to emit 32% less CO than in 1984 due to ongoing state and federal emissions controls. The projected effects of state and federal emission controls on new vehicles (and the retirement of older, more polluting vehicles) would more than offset the increases in traffic volumes and traffic congestion.

Curbside CO concentrations at selected intersections affected by project-generated traffic, and by cumulative development traffic (based both on the Downtown Plan Draft EIR growth projections and on the March 10, 1984 cumulative list), were projected for worst-case conditions (poor dispersion meteorology), and are compared with the ambient standards in Table 13, page 114. These concentrations are also compared in the table to concentrations projected for C-3 District development by the Downtown Plan Draft EIR. The results indicate that violations of the state and federal eight-hour average CO standards currently occur at both intersections under worst-case meteorological conditions. No excesses of the applicable CO standards are projected for 1990 at any of the three locations analyzed, under any scenario.

Emissions of TSP generated by the project and by cumulative development would increase TSP concentrations, which could increase the frequency of TSP standard violations in San Francisco, with concomitant health effects and reduced visibility.

Emissions of SOx generated by the project and by cumulative development would probably not bring San Francisco's SO_2 concentrations significantly closer to violating the standard.

The project, and other downtown development on the cumulative list or under the Downtown Plan, would not directly conflict with the pollution reduction strategies recommended by the 1982 Bay Area Air Quality Plan. These strategies consist primarily of HC and CO emission controls on stationary sources and motor vehicles, and transportation improvements, and are aimed at attaining the federal ozone and CO standards. In addition, emissions associated with the project and with the other downtown development are not projected by this EIR or by the Downtown Plan Draft EIR to increase ozone concentrations or to result in violations of CO standards, and thus would not indirectly conflict with the objectives of the 1982 Bay Area Air Quality Plan.

Alternative 1 to the Downtown Plan (covered in the Downtown Plan Draft EIR) would generate about 38% more emissions in 2000 (from development between 1990 and 2000) than would the Downtown Plan. Alternative 4 would generate about 7% less emissions than would the Downtown Plan. Emissions generated by Alternatives 2, 3 and 5 would fall within this range. The types of air quality impacts under these alternatives would be the same as those under the Downtown Plan; their magnitudes would vary in proportion to their differences in emissions.

The pollutant emissions and CO concentrations shown in Tables 12 and 13 were projected for 1990 on the basis of two different sets of future growth assumptions, with differing results. In one case, a list of specific projects proposed, approved and under construction was used (the list of Cumulative Office Development in Downtown San Francisco, March 10, 1984). In the other case, the employment growth trend approach of the Downtown Plan EIR was used, and those projections presented. In both cases, the method for the air quality analyses was identical. However, the results using projected cumulative development are not directly comparable with those from the Downtown Plan DEIR for several reasons.

First, it is reasonable to assume that the projected cumulative development on the list would be completed and occupied sometime between 1990 and 2000, rather than in either of those two analysis years used in the Downtown Plan Draft EIR. The pollutant emissions and CO concentrations were calculated for 1990 using the cumulative list, even though those projects are not expected to be completed until the mid-1990s, in order to provide

the possibility of some comparison with the Downtown Plan Draft EIR results. However, this has the effect of artificially increasing the cumulative list results, because average-vehicle emission rates will decline with time, as a result of federal and state controls.

Second, the transportation analysis used for the Downtown Plan Draft EIR differs from that used for the cumulative list, as described in the Transportation section of this report (pages 88 to 96). Briefly, these differences include the fact that a cumulative list-based analysis assumes that the same proportion of new employees would commute by private auto as is currently the case. In contrast, the Downtown Plan Draft EIR analysis projects that commuters will shift from driving alone to using carpools and transit, because commute routes such as the Bay Bridge are already at or near capacity and could not accommodate all of the vehicles that would be used if the proportion of persons driving alone to work remained constant.

Other reasons for the differences include the use in the cumulative list analysis of a constant regional distribution of trips, whereas the Downtown Plan Draft EIR forecasts a declining percentage of new employees residing in San Francisco, and the lack in the cumulative list approach of discounting factors to account for trips between individual projects within the Downtown (see Section IV.B. Transportation of this DEIR).

Thus, total (regional) vehicle miles traveled and the resulting pollutant emissions projected using the cumulative list approach are considered artificially high. On a local intersection basis, traffic volumes and the resulting CO concentrations might or might not be higher with the cumulative list approach, depending on the particular location. This is because the cumulative list method does not distribute traffic on all the same streets in the same proportions as does the Downtown Plan Draft EIR method. For the two intersections analyzed here, the projected traffic volumes and CO concentrations are higher with the cumulative list approach.

The proposed project would be consistent with the growth projections and the specific transportation control measures contained in the Bay Area Air Quality Plan. Therefore, the project would be consistent with that plan.

H. CONSTRUCTION NOISE

Construction of the proposed project would take place over approximately 15 to 18 months and would encompass three phases: demolition, foundation excavation and construction, and building erection. Construction noise levels would fluctuate depending upon the following variables: phase of construction; type of equipment used during each phase; noise emitted during the noisy mode of any particular equipment in use; duration of use of equipment; distance between the noise source and the receptor; and the noise propagation characteristics of the path between the noise source and the receptor (i.e. shielding by barriers or intervening buildings results in a reduced noise level at the receptor). In order to estimate possible construction noise impacts, this EIR assumes typical equipment and construction techniques.

Demolition would probably require the use of jackhammers and rubble would be loaded into trucks with front end loaders and hauled away. Jackhammers typically emit levels of 88 dBA[1] at a distance of 50 feet. Front end loaders and trucks emit levels of 80-90 dBA at a distance of 50 feet.

During foundation excavation, bulldozers, graders, haul trucks and front-end loaders would be expected on the project site. These pieces of equipment generate from 70 to 85 dBA at 50 feet.

During foundation construction, the major noise sources would be concrete pumping trucks and pile drivers. Concrete pumping trucks generate noise levels of up to about 85 dBA at 50 feet; pile drivers generate up to about 105 dBA at 50 feet.

During building erection the major noise sources would be concrete pumpers, power saws, cranes, air compressors, generators, and impact torque wrenches. The noisiest single activity during building erection would be the sporatic use of impact wrenches to fasten shear connectors and metal decking to the steel frame. Impact wrenches emit about 95 dBA at a distance of 50 feet, and are typically used for a two month period during the building erection phase.

Construction noise in the City and County of San Francisco is controlled by Ordinance 274-72, Regulation of Noise, Section 2907. The ordinance requires that all powered construction equipment except impact tools and equipment emit not more than 80 dBA

measured at 100 feet (86 dBA at 50 feet). Impact tools and equipment including pavement breakers, jackhammers, and pile drivers must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. It should be noted that the ordinance does not require mufflers on impact tools used in San Francisco. The ordinance does prohibit construction work from 8 p.m. to 7 a.m. if noise from such work exceeds the ambient noise levels by 5 dBA at the property line, unless a special permit is authorized by the Department of Public Works.

The noise levels generated by construction of the proposed project would have the greatest effect upon the buildings nearest the site and would diminish by 6 dBA with every doubling of distances.

Noise levels during construction would be greatest during pile driving operations. All outdoor spaces within 50 feet of the site would experience a peak noise level of about 105 dBA. The outdoor plaza areas on either side of the Chevron building would have a peak noise level of about 105 dBA in those areas nearest the site to 87 dBA for those areas along Market Street. Interior noise levels would reach about 75 dBA in those offices of the Chevron building which front Stevenson Street. The offices and commercial spaces across Ecker Street and immediately adjacent to the project site (Swallow Printing and 71 Stevenson) would experience peak noise levels of about 90 dBA with open windows and 80 dBA with closed windows. The peak noise level in those classrooms of Golden Gate University fronting Jessie Street would be about 69 dBA during pile driving operations, assuming line-of-sight with the point at which the driver meets the pile. Since the line-of-sight between the noise source of the pile driver and the classrooms of the university would be blocked by the Swallow Printing building, the peak noise levels would be reduced somewhat. In balance, however, there would be some echoing effect due to the narrow streets which would increase the noise levels in the area. Golden Gate University offers evening courses throughout the year so noise effects from pile driving cannot be easily avoided by limiting this activity to nonworking hours. During concrete pouring and framing operations, these levels would be about 10 dBA lower.

In offices where the interior peak noise level would exceed 70 dBA, workers would find it difficult to concentrate or use the telephone. The peak noise level at the plaza areas would be annoying during pile driving, but would not be especially distracting during other

construction operations. Classroom instruction could be interfered with, making lecture activities and concentration difficult.

Two additional projects, 71 Stevenson and Lincoln Plaza, are planned within the project area, which would have construction noise impacts. Should either or both of these projects have a construction schedule that coincides with the proposed project, noise levels would be expected to increase by 3 dBA (barely audible).[2] However, should one project be completed and a second begin immediately or soon thereafter, the noise impacts would be prolonged.

The construction contract would specify that the contractor muffle equipment so that noise levels would not exceed the limits stated in the City Noise Ordinance (Article 29, San Francisco Administrative Code, 1972). Mufflers and shrouds on jackhammers and impact wrenches would be incorporated to reduce the noise impacts of these operations by 10-15 dBA. This would reduce the noise levels of these operations to 60 dBA or below at adjacent office or retail spaces with windows closed; with open windows noise levels would be distracting but would not interfere with telephone use.

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[1] A complete discussion of fundamental concepts of environmental noise is found in Appendix D, page A- 57.

[2] Beranek, Leo., Noise and Vibration Control, McGraw-Hill, 1971, pg. 42.

I. ENERGY

The proposed project is subject to Title 24 of the California Administrative Code which establishes energy conservation standards for the design and construction of buildings. The specific regulations which would apply were adopted by the California Energy Resources Conservation and Development Commission, June 30, 1977 and went into effect January 1, 1978.[1] A new version of these standards is currently in preparation and is expected to be available in 1983 and in force in 1984.[2]

The applicable regulations set standards governing the design and construction of the building envelope; heating, ventilating and air conditioning systems; service water heating; electrical distribution and lighting. The requirements of the standards must be satisfied in one of three ways:

- The energy budget method, which requires that the energy consumption of the proposed building be calculated using a state-approved energy analysis computer program and then compared to an allowable limit.
- The component performance standards method, which requires the incorporation of a set of specific design features.
- The use of nondepletable energy resources. (Energy from nondepletable sources, such as solar or wind energy, is not counted against the allowable energy budget.)

The documentation of compliance with these standards is submitted with the application for the building permit. As part of the project the sponsor plans to include a variable air volume heating, ventilating and air conditioning (HVAC) system and individual package units to reduce energy consumption levels and therefore assist in complying with Title 24 standards (see Section V Mitigation Measures, page 154).

At this stage in the design of the proposed project, insufficient information is available upon which to base a building energy budget analysis for either Title 24 compliance or other engineering purposes. In lieu of that, estimates of the likely energy consumption of the proposed project have been made based upon comparisons with other projects in San Francisco and assuming compliance with Title 24 by the energy budget method. The resulting estimates are shown in Table 14, page 122.

TABLE 14

ESTIMATED PROJECT ENERGY USE[1]

Allowable Under Title 24	
Total annual BTU[2] per square foot of office space	126,000 BTU per square foot per year
Total annual BTU per square foot of retail space	200,000 BTU per square foot per year
Monthly Electric Consumption[3,4]	
Estimated total monthly electric consumption	0.3 million kilowatthours
Estimated monthly electric consumption per square foot	1.4 kilowatthours
Daily Natural Gas Consumption[5]	
Estimated daily natural gas consumption per square foot	40 BTU
Estimated peak daily natural gas consumption[6]	100 therms
Annual Consumption	
Estimated total annual energy consumption	33 billion BTU equivalent to 5,900 barrels of oil
Estimated total annual electric consumption	2.9 million kilowatthours
Estimated total annual natural gas consumption	23,300 therms
Connected kilowatt load	1,100 kilowatts

[1] Includes space conditioning, service water heating and lighting in accordance with allowable limits under Title 24. Estimated electricity consumed by appliances such as typewriters, computers, coffee makers, etc., is included in the projections, although not included in the Title 24 estimates.

[2] BTU (British Thermal Unit): A standard unit for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1° Fahrenheit (251.97 calories) at sea level.

[3]The amount of electricity that would actually be used includes non-occupant loads covered by Title 24 as well as electric loads from appliances such as computers, copiers and typewriters. The total estimated electricity consumption is based on unpublished building energy consumption data supplied by David Rubin, Department of City Planning, personal communication, April 1984.

[4]The assumed split between electricity and natural gas (90% electricity, 10% natural gas) use is based upon predicted consumption rates of other San Francisco projects. However, this "split" is sensitive to the design used; actual consumption rates may differ considerably.

Note: Energy Conversion Factors:
one gallon gasoline = 125,000 BTU
one kilowatt (kw) = 10,200 BTU assuming operational efficiency of 33% for fossil or nuclear fueled power plant
one therm = 100,000 BTU
one barrel of oil = 5,600,000 BTU

[5]The amount of gas that would be consumed is based on unpublished building energy consumption data supplied by David Rubin, Department of City Planning, personal communication, April 1984.

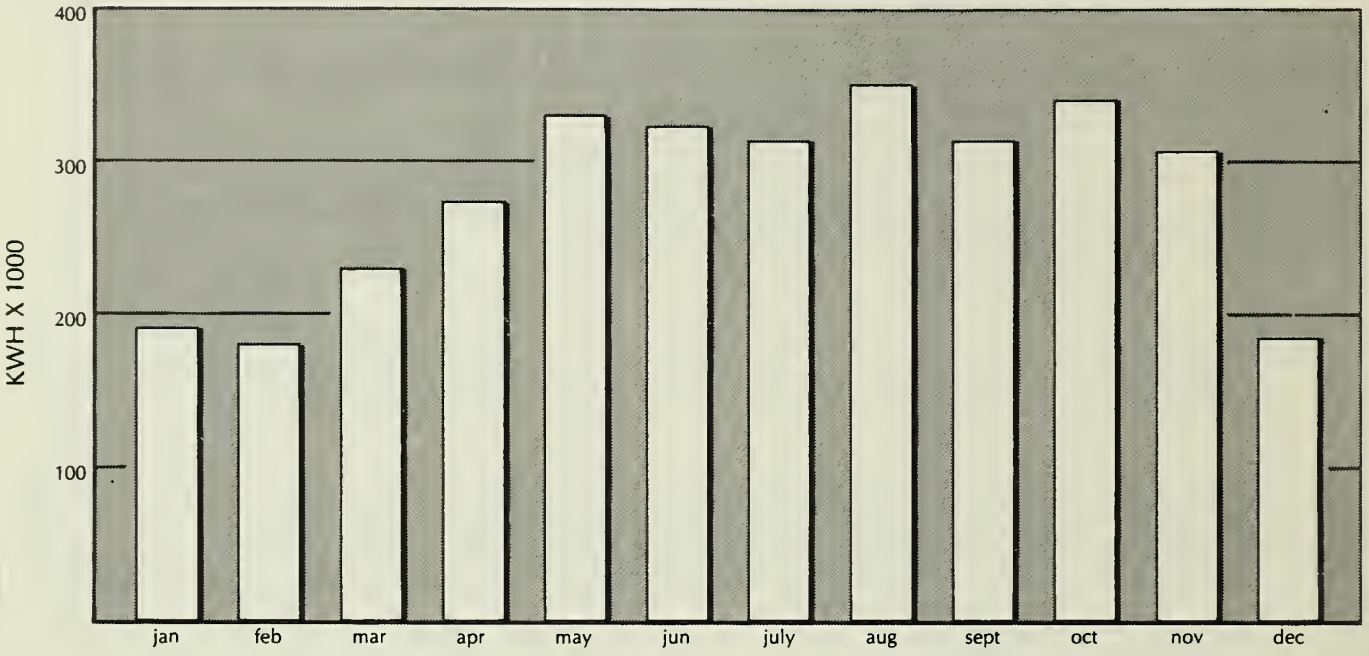
[6]Since detailed engineering studies have not been performed for the proposed design, estimates of peak natural gas consumption are highly speculative. A review of load curves prepared for other projects indicates that peak demand may be about 50% greater than average demand. The estimate here is based on that assumption.

Daily and annual load distribution curves are not estimable at this time due to the unavailability of design information. Since load curves are not governed by Title 24, no reasonable assumptions are readily available. It may be noted, however, that similar projects in San Francisco for which load curves have been developed show peak electrical consumption on hot August or September afternoons due to demand for cooling, which coincides with PG&E's systemwide peak.[3] Typical load curves for natural gas and electricity are shown in Figures 29 and 30, pages 123 and 124. Natural gas demand of other projects has been predicted to peak during cold January mornings, which does not coincide with the systemwide peak. The drop in electrical demand at the noon hour is due to smaller demand for appliance operation and cooling as workers stop for lunch. The actual load curves for the proposed project would be expected to differ in shape and magnitude of demand from those in Figures 29 and 30. For example, if the retail portion operates during evening hours, additional energy would be used during those periods.

ELECTRICAL CONSUMPTION, TYPICAL OFFICE BUILDING

FIGURE 29

SOURCE: DEPARTMENT OF CITY PLANNING FEIR,
Spear and Main Street Office Building, San Francisco, May 1982



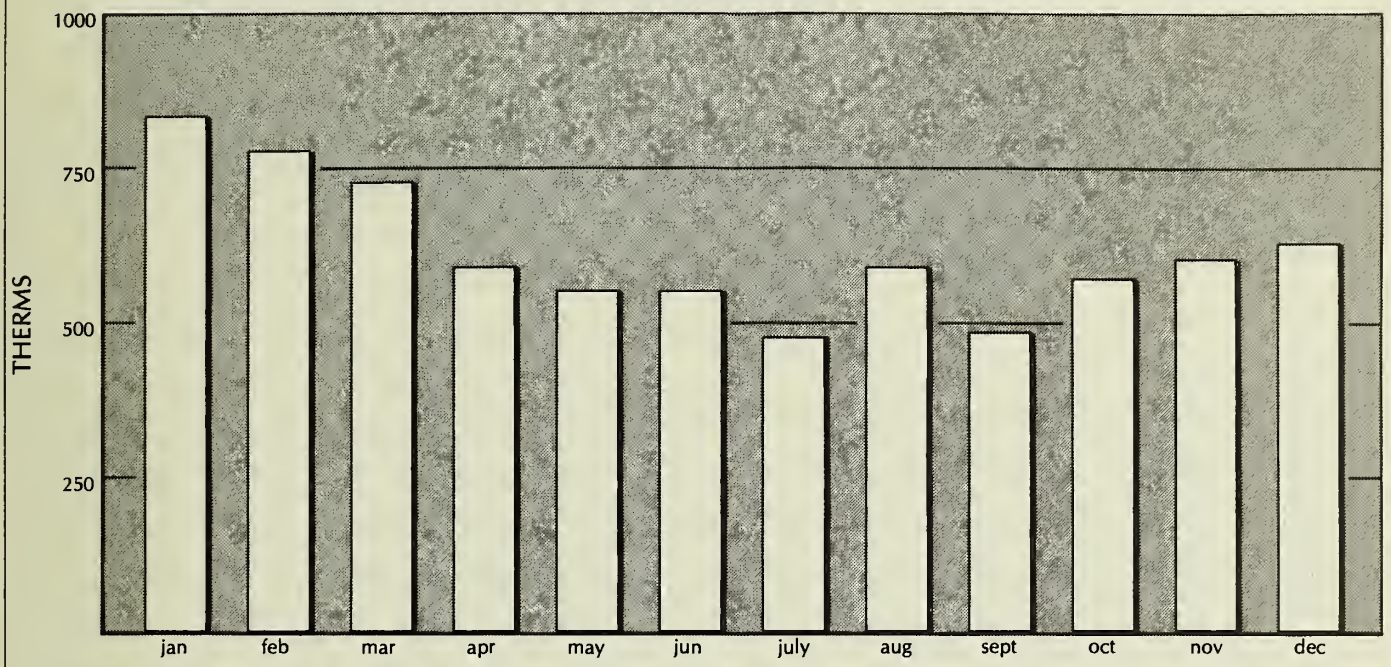
MONTHLY CONSUMPTION

HOURLY CONSUMPTION

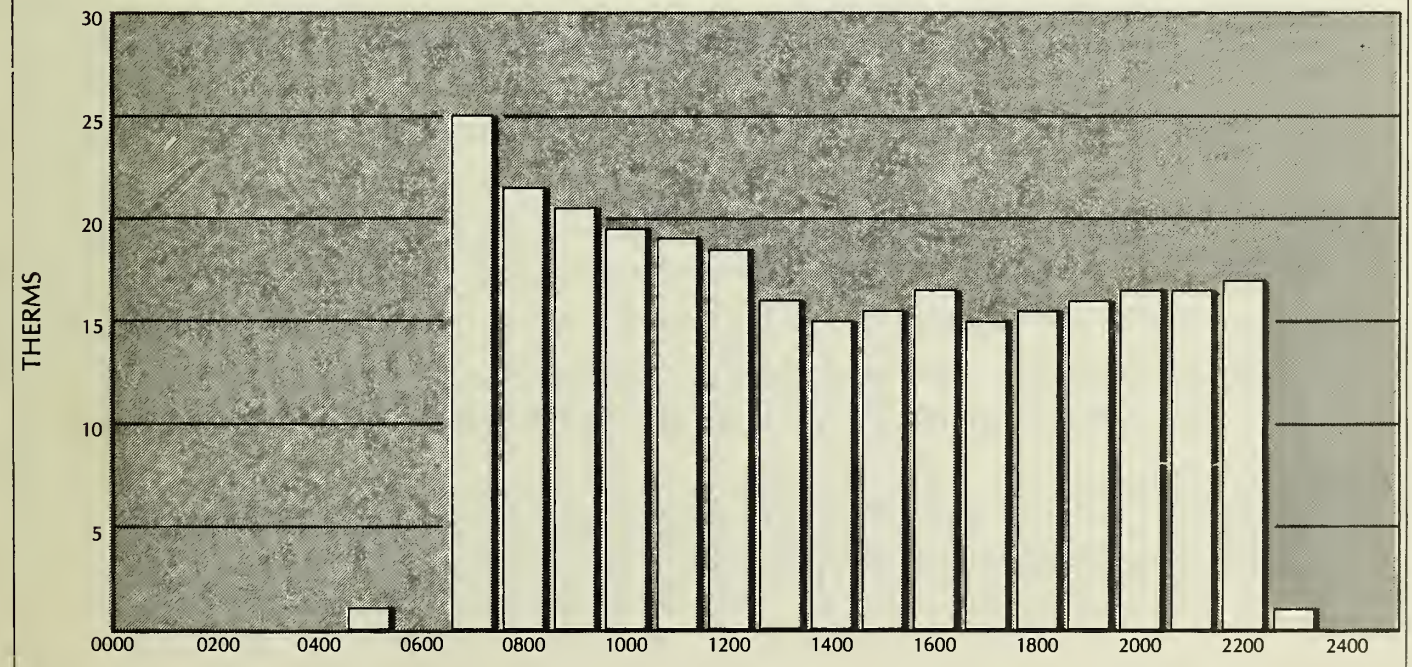
GAS CONSUMPTION, TYPICAL OFFICE BUILDING

FIGURE 30

SOURCE: DEPARTMENT OF CITY PLANNING FEIR,
Spear and Main Street Office Building, San Francisco, May 1982



MONTHLY CONSUMPTION



HOURLY CONSUMPTION

The Department of City Planning predicts future power consumption, based on the electricity use of 18 recently constructed buildings in the downtown area, to be about 18 kWh per square foot per year.[4] This number includes an estimate of the base power consumption of the building core, such as air circulation, cooling, mechanical and lighting loads, as well as power demands due to increased use of electronic office machines including copiers, computers and word processors, which are generally in operation the entire work day. Yearly estimated electrical consumption for the projected 19 million square feet of additional office space in downtown San Francisco would be approximately 340 million kWh of power per year (see Appendix E, Table E-1, page A-62 for a list of these projects). Previous electrical consumption projections in EIRs did not include power used by office machinery.

Pacific Gas and Electric Company, in examining its ten-year load growth projections for San Francisco, believes that growth rates of net new office space in the downtown area will diminish in the next decade from the historic figure of 1.5 million square feet per year to between 1 million and 1.2 million square feet per year.[5] The utility company's current analysis of a typical office building yielded an annual consumption of about 17 kWh per square foot. This agrees with the City's estimate (noted above), within the limits of estimation methodology. Using these figures, total increased energy demand for the next decade would be approximately 200 million kWh of electricity per year, less than projected using the cumulative list. The lower PG&E prediction is largely due to its lower estimation of future development.

Projections of energy use discussed in the Downtown Plan DEIR indicate an increase of about 210 million kWh of electricity per year between 1984 and 1990 as a result of all new development occuring in the C-3 District. From the period 1990 to 2000, electrical consumption rates would increase annually by 330 to 350 million kWh above present figures, or 120 million to 140 million kWh above the increases estimated for the 1984-1990 period. Both estimates are for growth that would occur under the Downtown Plan scenario.[6] Energy requirements for development that would occur with the Alternatives proposed in the Downtown Plan DEIR predict an increased demand of between 300 million kWh per year to 500 million kWh per year between 1984 and 2000.[7]

Estimates referred to in the Downtown Plan DEIR are not directly comparable to those estimates made by applying a kWh per square foot per year generation factor to the

square footage of projected cumulative development (list method) for two reasons. First, the energy projections made using the list method estimate energy demand at the time of full buildout (mid 1990's) rather than during the 1984-1990 and 1990-2000 time periods as in the Downtown Plan DEIR. Second, about 75% of the projects on the March 10, 1984 list of projected cumulative development in downtown San Francisco fall within the C-3 District boundary, which means the list method estimates energy consumption for a larger area than the Downtown Plan DEIR.

The PG&E projection cannot be compared to the projections in the Downtown Plan DEIR because they cover different time periods. A comparison of the Downtown Plan and PG&E estimates for projected energy demands in downtown San Francisco for the last decade of the century is currently being prepared by PG&E in a report to be released later this year.

Natural gas consumption for new office development would be less than current demand, which includes consumption in older, less energy-efficient buildings. The Department of City Planning estimates that natural gas use by new buildings in the year 2000 would be 11 cubic feet per square foot per year.[4] The Department further estimates that, between 1984 and 1990, gas consumption will grow by 300 million cubic feet per year. PG&E is currently assessing projected demands for the San Francisco area in a report to be released later this year.

PG&E plans to meet increased San Francisco energy demands to the year 2000 are discussed on pages IV.G.13-14 of the Downtown Plan DEIR, which are hereby incorporated by reference.

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[1]State of California Energy Resources Conservation and Development Commission, Conservation Division, Energy Conservation Design Manual for New Nonresidential Buildings, October 1977.

[2]Al Deterville, Project Administrator, California Engineering Commission, Sacramento, California, telephone conversation, November 29, 1982.

[3]Load curves for air conditioned office buildings in San Francisco tend to be similar across a wide range of building designs. This is because energy consumption rates correlate well with outside temperature and working hours. The load curves shown in

Figures 29 and 30, pages 124 and 125, were selected to provide an indication of the shape of the actual load curves, which cannot be calculated until the design work has proceeded further. Examples of similar load curves can be found in the Final EIR's for projects at 466 Bush (EE 81.175), Five Fremont Center (EE 80.36), 101 Montgomery (DR 80.24) and 101 California (CU 70.12).

[4]San Francisco Department of City Planning, Downtown Plan DEIR, Appendix N, Footnote 3, page N.8.

[5]Ken Austin, Commercial-Industrial Marketing Supervisor, Pacific Gas and Electric Company, letter of March 23, 1984. Available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St., 5th Floor, San Francisco.

[6]San Francisco Department of City Planning, Downtown Plan DEIR, pages IV.G.1 - IV.G.17.

[7]Ibid., pages VII.G.1 - VII.G.4.

J. GEOLOGY AND SEISMICITY

The project site would be excavated to about 14 feet below street level.[1] This would produce about 5,000 tons of artificial fill (sand, silt, clay and rubble) to be removed from the site, since about half the site is already excavated to at least eight feet below street level. Site spoils would be transported by the shortest possible route to Highway 101 (probably via First, Mission and Beale Streets to Highway 480) and then to a disposal site, as yet undesignated, south of the City.[1] Spillage of sandy materials from the trucks along the haul routes could create a safety hazard for two-wheeled vehicles; it also could be a source of windblown dust and could cause siltation of City storm drains.

The base of the excavation could reach to two feet below the water table. The geotechnical engineer has recommended that sump pumps be used to keep the pit clear of water.[2] The amount of water to be pumped during the construction period cannot be determined until further well tests are completed. A siltation basin/filter system would be used to avoid adding sediment to the City storm drain system.[3]

As a foundation-supporting material, Bay mud is of low quality. Construction over Bay mud would require special engineering considerations. To avoid the shifting and settling effects of building over the unstabilized mud at this site, the project would include driving precast, prestressed concrete piles into the dense sands below the Bay mud to support the proposed structure.[4]

Undermining could cause damage such as cracking of walls, foundations and basements; tilting of walls, sagging of floors and bending of subsurface pipes. It could also damage adjacent streets and sidewalks. Therefore pit walls would need to be shored and adjacent structures might need to be underpinned, if excavation goes below the base of their foundations. The building contractor would be required to comply with the San Francisco Building Code and the Excavation Standards of the California Occupational Safety and Health Agency.

Final foundation design would occur after the soils investigation is completed, but the project sponsor expects to use piles as foundation support for the building. Vibrations generated by pile driving could damage nearby older buildings with shallow foundations. The extent of damage cannot be predicted since it is dependent on the type and condition of nearby foundations as well as the duration of pile driving. Preconstruction surveys

would be made to establish the potential effects of vibration from pile driving. A vibration monitoring program would be maintained throughout the pile driving phase of construction.[5]

The site of the proposed project would suffer at least "strong" groundshaking during an earthquake of Richter magnitude 6.0 or greater occurring along the San Andreas or Hayward Faults.[6] Major on-site impacts related to such a seismic event within the anticipated useful lifetime of the proposed structure (at least 50 years) include liquefaction[7] and densification.[8] Flooding by tsunami or seiche is not a potential hazard since the predicted 100-year and 500-year inundation levels would not reach the elevation of the site.

Estimates of "strong" to "very strong" intensity of future groundshaking are based on seismic events similar to the 1906 San Francisco earthquake.[9] For planning purposes, it is reasonable to assume a 59- to 105-year return period for this magnitude earthquake.[10] The project area is in a seismically active region which annually experiences low to moderate magnitude earthquakes epicentered within the major fault zones. In 1979, a moderate earthquake (Richter magnitude 4.2) occurred along the San Andreas Fault and two moderate earthquakes (Richter magnitudes 4.8 and 5.9) occurred along the Calaveras Fault.[11] Three earthquakes of Richter magnitude 5.5 to 5.9 occurred along the Calaveras Fault in 1980.[12] Based on records of previous earthquakes, the groundshaking at the site during a seismic event the size of the 1906 San Francisco earthquake (Richter magnitude 8.3) would cause occasional collapse of buildings on weak underpinnings and serious cracking in masonry buildings. Some ground failures such as liquefaction and densification would also occur. These ground failures could cause tilting or sinking of supported structures. Nonstructural elements, such as bookcases, free-standing wall partitions, hung ceilings, hanging light fixtures and mechanical equipment could become personal hazards during a major earthquake if not properly secured to prevent falling. The building would be designed to meet the seismic standards of the San Francisco Building Code, thus reducing these direct hazards to persons. The building would not depend on the artificial fill for support because the piles would penetrate to more stable materials, and therefore would not be subject to the densification and liquefaction hazards associated with fill during seismic events. The building would be required to meet the specifications of the San Francisco Building Code for seismic design concerning the amount of allowable sway, the attachment of partitions and decorative elements, and the provision of emergency electricity and water services.

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[1]James Leake, Project Architect, Kaplan, McLaughlin and Diaz, telephone conversation, August 9, 1983.

[2]R.W. Rudolph (C.E. 32136), Harding-Lawson Associates, telephone conversation, May 24, 1983.

[3]C.H. Lee and M. Praszker, "Bay Mud Developments and Related Structural Foundations", Geologic and Engineering Aspects of San Francisco Bay Fill, California Division of Mines and Geology, Special Report 97, 1969, pages 43 to 45.

[4]J.E. Rauber (C.E. 35331) and R.W. Rudolph (C.E. 32136), Preliminary Soil Study, 49 Stevenson Street Project, San Francisco, California, Harding-Lawson Associates, Engineers, Geologists & Geophysicists, April 29, 1983, 9 pages plus 1 plate.

[5]Leake, op.cit.

[6]R.D. Borcherdt, et al., "Response of Local Geological Units to Groundshaking," Studies for Seismic Zonation of the San Francisco Bay Region, U.S. Geological Survey Prof. Paper 941-A, 1975, page A62.

[7]Liquefaction: Earthquake-induced transformation of a stable granular material, such as sand, into a fluidlike state, similar to quicksand. Office of Environmental Review, Standard Definitions, San Francisco, California, November 15, 1979.

[8]Densification: Compaction of loose soil such that it loses pore space and occupies a smaller volume, i.e., becomes more dense. American Geological Institute, Glossary of Geology, 2nd ed., R.L. Bates and J.A. Jackson, editors, Washington, D.C., 1980.

[9]URS/John A. Blume and Associates, San Francisco Seismic Safety Investigation, San Francisco, California, June 1974, page 14 and Figure 3.

[10]K.M. Shedlock, R.K. McGuire and D.G. Herd, Earthquake Recurrence in the San Francisco Bay Region, from Fault Slip and Seismic Movement, U.S. Geological Survey Open File Report 80-999, Menlo Park, California, 1980, p. 10.

[11]U.S. Geological Survey, Earthquakes in the United States, 1979, Circular 836, 1980-1981, page B19, C19, C27.

[12]U.S. Geological Survey, Preliminary Determination of Epicenters, Monthly Listings, 1980-1981.

K. CUMULATIVE FIRE PROTECTION SERVICES AND EMERGENCY EVACUATION

New high-rise structures in San Francisco have been required to conform with the Life Safety provisions of the San Francisco Building Code since 1975. These buildings must be provided with automatic fire sprinklers throughout, as well as with a fire alarm system, emergency power, and special elevator controls. Although the probability of a fire occurring in a new high-rise building is about the same as that for any pre-1975 building of similar size and occupancy, the chance of the fire spreading is reduced by the automatic operation of the fire sprinklers. In the majority of fires involving fully sprinklered buildings, a single sprinkler is adequate to control the fire because the sprinkler extinguishes flames before they spread.

The Fire Department attributes a decrease in building fires and multiple-alarm fires to increased fire prevention inspections by fire suppression units, improved abatement procedures for code violations by the Fire and Building Departments, greater focus on public safety educational programs, and the continuing replacement of older, more hazardous structures with modern construction that conforms to the Life Safety provisions of the Building Code.

The proposed project would be located on two small streets, Stevenson and Ecker. An orderly evacuation could be hindered by the narrowness of these streets, should a circumstance arise requiring total evacuation of the buildings in the area. The Fire Department notes that highrises in the past have been constructed fronting on wide or major streets, facilitating orderly evacuation. They cite as a possible scenario the major gas leak at Sacramento and Battery Streets in 1982, when evacuees were exited to four separate streets, making possible a fast and orderly evacuation.

Although past code regulations permitted high-rise buildings on narrow streets, the Fire Department believes that narrow streets could hinder an orderly evacuation. As a result, an amendment was added to the San Francisco amendments of the Uniform Building Code (UBC) which took effect January 1, 1984. The amendment (Section 504(a)) requires buildings to "adjoin or have access to a street or to a public space not less than 45 feet in length or not less than one side . . ." unless the height of the building is not more than two times the street width. Since Stevenson Street is 40 feet wide and Ecker Street is 15 feet wide, the project would not conform to this provision. Whether the new provision applies to a project with a permit under review at the effective date of the UBC will be

determined by whether the project's planning meets the requirements of Section 108(b) of the UBC which establishes applicability criteria. The Fire Department recommends that exiting be accessible to more than one street.[1] As shown in Figure 4, page 12, the proposed project would provide access to both Stevenson and Ecker Streets via two separate stairwells located on the south side of the building. The project also contains an arcade along its entire frontage. The Stevenson Street section of this arcade would adjoin the arcade of 71 Stevenson Street project which would also provide access to Jessie Street. Further, Tishman Plaza across Stevenson Street from the project provides pedestrian access to Market Street. An evacuation and emergency response plan would be developed as part of the proposed project (see Section V., Mitigation Measures, page 155). The project's emergency plan would be coordinated with the City's emergency planning activities.

L. GROWTH INDUCEMENT

The project would add approximately 169,600 gross square feet (gsf) of office space and about 9,800 gsf of retail space and remove approximately 32,700 gsf of office space and 12,700 gsf of retail space. Thus, the project would provide a net gain of approximately 136,900 gsf of office space and a net loss of 2,900 gsf of retail space.

At full operation, the project would provide about 550 net new permanent jobs, including office, managerial, retail, restaurant and maintenance positions. Businesses currently existing on-site would be relocated to the new structure to the extent possible. The Yank Sing and Eckers restaurants have agreed to relocate within the proposed project. It is unknown at this time whether the other existing tenants would occupy space within the new structure. Other occupants of the proposed project are unknown; they could include tenants who would relocate from elsewhere in the Bay Area or from within San Francisco and firms that are new to the Bay Area. To the extent that the building is fully leased, and the availability of its space does not create permanent vacancies in other Bay Area office buildings, total employment in the Bay Area could additionally increase by about 1,150 permanent jobs through the multiplier effect.

Any net increase in employment downtown would increase the demand for retail goods and food services in the area. The project would intensify this demand, which would be met, in part by retail space proposed for the ground level and second floor of the project. The project would be built in an already developed urban area and would not require new construction or extension of public services or utility systems.

The project would represent an addition of less than one percent of office space growth in downtown San Francisco. To the extent that the project would attract new residents or commuters who otherwise would not have been attracted to San Francisco or the Bay Area, the demand for commercial, social and municipal services would be increased.

If marketed successfully, the proposed project together with other planned office development, could have growth-inducing effects by demonstrating a market for office space in this area, thereby encouraging other similar projects on lots currently occupied by low-rise structures containing business support services (particularly in the South of Market area). This growth could be in response to an increasing demand for office space located in San Francisco's Financial District. This demand would exist whether or not the

project is built. As indicated in a report prepared by Coldwell Banker on the office vacancies in the downtown areas of 22 U.S. cities, San Francisco's office vacancy rate remains below the national average.[1] San Francisco's demand for office space continues the trend of growth in the service sector and headquarters office activities and employment. The increase in downtown office space would contribute to the continued growth of local and regional markets for housing goods and services.

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[1]Coldwell Banker, "Office Vacancy Index of the United States", September 30, 1982.

M. EMPLOYMENT, HOUSING AND FISCAL FACTORS

1. Employment

At full operation the proposed project would provide an estimated 552 net new permanent jobs for office, retail and janitorial maintenance functions. These would include 548 office workers (at one worker per 250 square feet of net new office space), eight fewer retail workers (at one worker per 350 square feet), and 12 janitorial/service workers (at one worker per 12,000 square feet).[1] Existing businesses would be relocated to the new building to the extent possible. The Yank Sing (presently at 53 Stevenson) and Eckers (presently at 49 Stevenson) restaurants have agreed to relocate within the proposed project and it could be assumed that existing restaurant employees would relocate as well. It is not known at this time whether other existing tenants would occupy space within the new structure (see Section III.I. Employment Setting, page 52 for further discussion of existing employment).

The jobs generated by the proposed project would create additional Bay Area employment through a multiplier effect. Assuming that the new jobs created as a result of the project were primarily in the Finance, Insurance and Real Estate industries (FIRE), about 600 additional jobs in other sectors of the Bay Area economy could result. Table F-4, Appendix F, page A-75 shows the distribution of this secondary employment by sector. The multiplier encompasses the entire Bay Area and the specific number of additional jobs in San Francisco as a result of the multiplier effect is not possible to calculate.

The total number of permanent new Bay Area jobs that would be supported by the project's addition to the stock of downtown office space would be about 1,150 (550 direct jobs plus the 600 jobs induced by the multiplier).

Construction activities are expected to take about fifteen to eighteen months and generate about 250 person-years of construction labor.[2] As a result of the multiplier effect of project construction, about 390 additional person-years of employment would be generated in the Bay Area.[3] Some of this secondary employment would be in San Francisco, although it is difficult to estimate the amount.

2. Housing

a. Project-Related Effects

The office portion of the project could increase the demand for housing in San Francisco. According to the City Planning Commission's Office Housing Production Program (OHPP), the housing demand generated by this office space would be 122 units.[4] This estimate assumes that there would be one employee per 250 gross square feet of office space, that 40% of the new office workers will would move to San Francisco as a result of the project, and that there would be an average of 1.8 office workers per household.

An alternative analysis of the relationship between downtown office growth and housing demand in San Francisco was documented in a report prepared by Recht Hausrath and Associates, Economists, which appears as Appendix C, pages 289 through 329, of the 101 Montgomery Street EIR, certified by City Planning Commission Resolution 8941, May 7, 1981. This report is available for public review at the Office of Environmental Review, 450 McAllister Street, fifth floor, and is hereby incorporated by reference into this EIR pursuant to Section 15149 of the California Environmental Quality Act (CEQA) guidelines.

This study estimated that 15% to 30% of the people newly employed in San Francisco as a direct result of downtown office projects would move to San Francisco, and that there is an average of 1.4 San Francisco workers in each San Francisco household containing downtown workers. Under these assumptions, the project would have a demand for about 58 to 117 households in San Francisco.[5] The study further concluded that most people cannot afford housing costs in the City despite relatively high wages and employment opportunity.

b. Housing Affordability

Based on available data, an approximation of a housing affordability analysis appears in Appendix F, Table F-2, page A-74. Data in the table rely on published sources of office worker incomes (not household income), and prices of housing (without regard to housing availability). Assumptions are made regarding ratio of housing expenses to income, mortgage interest rates and down payments. Analysis based on these data and assumptions indicates that most project employees would not be able to afford housing ownership

in San Francisco, although a significant minority, depending on the number of workers per household, would be able to do so. Most project employees, except the lowest-paid clerical employees desiring to live alone, would be able to afford rental housing in San Francisco.

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15149a, discussion of housing affordability for new office workers is incorporated by reference from the Second Street Square Final EIR, 82.591E, certified January 12, 1984 (pages 53-55). Briefly, while a survey of occupants of a building comparable to the project would yield some housing affordability data, accurate identification of housing affordability characteristics for persons entering the San Francisco housing market as a result of a new office project is virtually impossible. The problems with making such a determination include: i) the identity and financial resources of persons employed in the newly constructed space; ii) persons working in the newly constructed space (in old or newly created jobs) may not be newly employed in San Francisco; and iii) persons newly employed in San Francisco in newly created jobs may not have obtained their job as a result of new office development. Even if the number of new employees and their preferences for housing were known, a household's ability to pay for housing depends on a variety of factors in addition to individual income, such as family composition and housing preferences.[6]

3. Cumulative Effects

a. Downtown Office Space

The proposed project, together with other major downtown office buildings under formal review (8.7 million net new square feet), approved (4.8 million net new square feet) and under construction (5.1 million net new square feet) would add about 19.0 million gross square feet of net new office space if all were to be built (see Appendix E, Table E-2, page A-62 of this report). This list subtracts existing office space, on the sites of new buildings, that would be demolished. Of the 19.0 million square feet of office space on the cumulative list, about 12.8 million are within the C-3 District.

Projections for alternatives in the Downtown Plan Draft EIR for the C-3 District indicate a total of about 70.5 million gross square feet of office space in 1990 and between 77.5

and 86.5 million gross square feet of office space in 2000, an increase of 14.4 to 24.4 million square feet. The Downtown Plan would result in an increase of about 16.8 million square feet.[7] These projections considered land availability, location preferences, market conditions and economic trends as independent variables, plus various zoning and planning policies of the Downtown Plan and the five alternatives analyzed in the Downtown Plan DEIR. The forecasts in the Downtown Plan DEIR are of space expected to be built and occupied in the C-3 District between 1984 and 2000.

The amounts of office space on the cumulative list and in these forecasts, although distinct from each other, can be compared. The list contains about 12.8 million square feet of office space in the C-3 District and the Downtown Plan DEIR indicates about 8.4 million square feet of office space being added to the C-3 District between 1984 and 1990. The 12.8 million square feet on the list would be expected to be absorbed in the mid-1990s.

Office space projections for all alternatives in the Downtown Plan DEIR for the year 2000 would exceed existing office space plus office space on the cumulative list, as the cumulative list cannot take into account projects not yet proposed. Office space on the cumulative list would be absorbed in the mid-1990s under all Downtown Plan DEIR alternatives. These comparisons are based on the assumption that all projects on the cumulative list would be built as proposed and projects not yet proposed (i.e., not on the cumulative list) would not be built before the years identified above. In addition, these comparisons are based only on projects on the cumulative list within the C-3 District.

b. Residence Patterns and Housing

This section takes a long-term perspective, focusing on changes in downtown office workers living in San Francisco and the housing market implications of downtown growth.

Future Residence Patterns: Employment growth and building development in downtown San Francisco will result in more employees working and living in the City. Over time, more existing residents will take San Francisco jobs and others who take San Francisco jobs will move into the City.

Downtown Plan Forecast of Residence Patterns: Forecasts of residence patterns in the year 2000 were prepared for the Downtown Plan DEIR.[8] The scenario of C-3 District building development and employment growth under the Downtown Plan, as described in the Downtown Plan DEIR, incorporates the effects of policies affecting the size, cost and location of new development as well as underlying economic conditions influencing the demand for space. The forecasts of residence patterns for this growth scenario incorporate future housing, labor force and employment patterns in San Francisco and throughout the region and consider changing demographic, housing market and transportation factors.

According to the Downtown Plan forecasts, approximately 137,000 C-3 District office workers would be living in San Francisco in 2000. This represents an increase of 25,000 residents employed in C-3 District offices over the 112,000 estimated for 1984, a 22% increase.[9] Relatively more employed San Franciscans would be employed in C-3 District office jobs. The percentage (employed San Franciscans holding C-3 District office jobs) would increase from 32% in 1984 to 34% in 2000. Relatively fewer C-3 District office jobs would be held by San Franciscans. The percentage (C-3 District office jobs held by San Franciscans) would decline from 50% in 1984 to 45% in 2000. These changes would be the result of cumulative development and employment growth in the C-3 District between 1984 and 2000.

It is important to understand the difference between the two percentages above. In each case, the same estimate of the number of jobs held by San Francisco residents is compared to an estimate for a larger group: to all employed residents of the City in the first instance and to all C-3 District office employment in the second. The percentages are different since the number of employed residents is different from the number of office jobs. These percentages both describe the same employment situation, but from different perspectives.

The Downtown Plan forecasts fall within the range of estimates of C-3 District office workers living in San Francisco that was identified by the analysis of Alternatives in the Downtown Plan DEIR. By 2000, the Alternative forecasts range from 136,000 to 140,000 office workers living in San Francisco. The growth from 1984 to 2000 ranges from 24,000 to 28,000 additional office workers living in the City. The relative comparisons described

above apply to all the Alternatives; the percentage of total employed San Franciscans working in C-3 District office jobs would increase while the percentage of C-3 District office jobs held by residents would decline.

The proposed project, if approved, would be developed during this time period; businesses and employees would occupy the building; and, therefore, the project would contribute to the changes described above. The project would add about 136,900 square feet of net new office space to downtown San Francisco. Over the 1984-2000 period, a net addition of about 16.8 million square feet of office space is forecast for the C-3 District under the Downtown Plan.[10] (This estimate includes development of new office space and incorporates conversions and demolition of existing space.) The proposed project represents about 0.7 percent of the total increase in office space in the C-3 District over this period.

Two formulas have been developed to estimate residence patterns on a project basis. (Project-related housing effects are discussed on page 137 of this document.) The assumptions as well as the formula variables and their values are different. Nevertheless, the estimates that they provide represent a range of possible results.

Using the OHPP formula, the project would be associated with about 219 office workers living in San Francisco. Using the 101 Montgomery EIR formula, the increase in office workers living in San Francisco would range from 84 to 164.[11] In the context of cumulative changes in residence patterns under the Downtown Plan, the project would contribute from 0.3 percent to 0.9 percent of the total change, depending on the formula. (For this analysis, the formulas have been used to develop estimates of increases in office workers living in San Francisco. These estimates have not been converted into numbers of households. This approach was taken so that the project-related information would be comparable to the Downtown Plan DEIR analyses and forecasts which describe increases in office workers and do not identify households.)[12]

c. Estimates Based on the List of Office Projects in Downtown San Francisco

An alternative means of evaluating the cumulative effects of office projects such as the proposed project is to use the list of all projects that are under formal review. As of March 10, 1984, the City's list of such projects included the net addition of about 19.0 million square feet of office space. (This list is discussed in Appendix E, page A-62 of this

report.) The list incorporates projects proposed in the greater downtown area which is larger than the C-3 District. Of the 19.0 million square feet total, the list includes 12.8 million square feet in the C-3 District. This amount of space is smaller than the 16.8 million square feet forecast for the C-3 District by 2000 in the Downtown Plan DEIR.

The proposed project would represent about 0.7 percent of the total net new office space on the March 10, 1984 cumulative list. To compare the project's effects to the potential overall effects if all the projects on the list were built as proposed, it is possible to calculate from the list the change in the number of downtown office workers living in San Francisco. The two formulas used above for estimating the project's effects are applied to the total square footage for all projects on the list.

The development of all projects on the list would result in about 30,400 additional downtown office workers who would seek housing in the City, according to the OHPP formula. Using the range from the 101 Montgomery EIR formula, there would be 11,400 to 22,800 additional office workers who would seek housing in the City if all projects on the list were built. The project would represent less than 0.7 percent of these larger estimates of office workers living in the City.

d. Differences In Cumulative Approaches

There are several important differences between the two approaches to cumulative analysis: the approach of forecasting space and employment and the approach of using a list of proposed projects. The first approach is currently limited to C-3 District office space while the second covers a larger geographic area. In addition, there is no definite timeframe associated with the list, while the forecasts represent a best estimate of the development likely to be built and occupied from 1984 to 2000. Finally, the forecast methodology incorporates changes in economic activity and employment that would occur in the use of existing space while the list only includes the changes accommodated by new construction.[13] It is because of these differences that the cumulative estimates of future residence patterns under each approach are not comparable. Within each approach, however, the project can be compared to the cumulative totals as described above.

e. Housing Market Implications[14]

With continued office growth, there would be more people with preferences for San Francisco housing and with greater financial resources to pay for housing. These effects have impacts on the City's housing market.

At a minimum, continued office employment growth at the levels reflected by the Downtown Plan DEIR forecast and the cumulative list would contribute to keeping prices and rents at their current levels (in constant dollars). Depending on the future of other factors (such as interest rates and the availability of mortgage money), employment growth could contribute to a future situation where prices and rents are moderately higher, on average, than current levels.[15]

Higher prices/rents for San Francisco housing would mean that some people would decide not to move into San Francisco, current residents who rent would find it more difficult to buy a home, and some existing residents would move out of the City if they find more acceptable housing elsewhere. Many others would continue to live in San Francisco and to pay higher prices/rents for City housing. Still others, who are unable to pay more, would be forced to accept housing which does not meet their preferences or needs. And finally, owners of existing units would benefit to the extent that their investments appreciate.

The proposed project, as part of the future pattern of downtown office development, would contribute to these housing market impacts. The project's individual contribution cannot be separately identified.

In terms of the region's housing market, downtown office development and employment growth would not, by themselves, make a noticeable difference in the housing markets in other Bay Area counties or in the region overall. As a part of total regional employment growth to the year 2000, however, increases in San Francisco office employment can be viewed as contributing to regional housing demand. A strong regional economy has and will continue to be a factor supporting a competitive regional housing market with relatively high housing prices and rents.

4. Fiscal

a. Revenues

The proposed project would generate revenues from property tax, business tax, utility user's tax, and sales tax. These revenues are summarized in Table 15, below.

TABLE 15

ESTIMATED REVENUES GENERATED BY THE 49 STEVENSON PROJECT FOR THE CITY AND COUNTY OF SAN FRANCISCO

Tax		Project-Generated Revenues	Net Increase
Property Tax		$173,500	$164,700
Business Tax		$353,700	$334,600
Utility User's Tax			
Electricity	$ 6,435		
Gas	1,770		
Water and Sewer	390		
Telephone	11,870		
	20,500[1]	$ 20,500	$ 15,800
Sales Tax		$ 44,200	$ -400
TOTAL REVENUES		$591,900	$514,700

[1]Total does not add up due to rounding.

Source: EIP

Note: See text for description of revenues.

Assessed Valuation and Property Tax. The estimated value of the proposed project would be about $17.4 million.[16] The net annual increase in property taxes would be about $193,100 based on the 1% of full market value maximum tax levy allowed under

Proposition 13, plus an additional levy of 0.17% of full market value for repayment of bonds previously approved by the electorate. (The current total rate for the 1982-83 fiscal year is 1.17% of full market value.) It is not known at present how the property taxes would be distributed at the time the project is completed; however, applying the 1982-83 rate, San Francisco would receive about $164,700 (85.2% of the total composite property tax revenues). Table 16, below, presents the distribution of net property tax revenues to the appropriate agencies.

TABLE 16

DISTRIBUTION OF NET ANNUAL INCREASE IN PROPERTY TAX REVENUES GENERATED BY THE 49 STEVENSON PROJECT

Agency	Property Tax Revenues
City and County of San Francisco	$164,700
San Francisco Unified School District	14,100
San Francisco Community College District	2,500
Bay Area Pollution District	200
BART	11,600
TOTAL	$193,100

Source: EIP Corporation

Business Tax. The business tax is actually comprised of two taxes: gross receipts tax and payroll tax.[17] Revenues from these taxes would be generated by businesses occupying the project and by owners of the project who would pay a tax on the rents they receive. Payroll tax revenues from the project are estimated at about $337,600 per year, based on a 1.5% tax rate, and $32,200 average income for office workers, $15,000 per year for retail and maintenance workers. Based on the sponsor's projections of gross receipts at $30 per square foot, it is estimated that the gross rental receipts tax on the project would pay about $16,100 total for a project business tax revenue of about $353,700.

Utility User's Tax. Utility user's tax revenues are paid on the cost of electricity, gas, water and telephone use.

Electricity
1,716,000 kwh/year x $.075/kwh x $.05 tax = $6,435

Gas
62,400 therms x $.5665/therm x $.05 tax = $1,770

Water
(500,930 cubic feet water/year x $0.00414/cubic foot) plus
(500,930 cubic feet sewage/year x $.0115/cubic foot) x $.05 tax = $390.

Telephone
169,600 square feet x $1.40 square foot x $.05 tax = $11,870

The total utility user's tax would be about $20,500.

Sales Tax. Sales tax on purchases in the area by employees is estimated to total $11,600 annually.[18] The retail businesses in the project would generate an additional $32,600 for a total of $44,200 in sales tax to the City.[19]

Sales tax revenues generated by the one-half percent BART sales tax would be about $22,100. Of this total, BART would get $16,600 directly and the remaining $5,500 would be distributed by the Metropolitan Transportation Commission among BART, Muni and AC Transit.

Total Revenues. The potential increased revenues to San Francisco would be approximately $514,700 annually; however, this figure is subject to a number of variables that could affect the estimates:

- Property tax distribution could change in future years
- Payroll tax could vary according to the salaries of the employees in the proposed project
- Rents of the office may change, thereby affecting the gross business tax
- Cost for utilities, particularly telephone, are also variable

b. Costs

Costs to San Francisco for providing municipal services to the proposed project are difficult to quantify. Most evidence indicates that overall costs per unit of service provided (per square foot or per employee) to the new building would be lower than costs for the existing buildings in the area (see Appendix F, Table F-3, page A-74). This reduction in per-square-foot costs is primarily due to improvements in fire and security protection systems in new construction. Costs for water and sewer service would be paid through user charges.

Cost increases due to increased patronage would be expected for Muni, SamTrans, BART, and Golden Gate Transit. The City's general fund provides for a subsidy to the Municipal Railway's operating budget. The subsidy covers the difference between Muni's costs and the revenues that Muni receives from fares and from federal and state governments and represents the cost of Muni to the City. The net marginal cost (or increase in the City's deficit for Muni operations) per peak-hour ride was $0.39 in 1982. The proposed project would generate 77 peak-hour trips which could generate a net marginal cost to Muni of about $7,800.[20] The extent to which this cost would be met by the general fund allocation to Muni is not known. State and federal funds to Muni are decreasing and the City is reviewing other options for increased revenues.[21]

It is estimated that 60 peak-hour trips a day on BART would be generated by the proposed project employees. The District's deficit per rider for BART is estimated at $1.33.[22] Using this rate, the proposed project would generate a deficit of about $20,300. However, additional property tax and sales tax revenues generated by the project for BART would yield a surplus of $5,600 over the project's share of the operating deficit.

If the same proportion of General Fund revenues historically allocated to Muni continued, it could be assumed that the proposed project revenues would exceed municipal costs directly attributed to the project at the time of occupancy. Due to limitations imposed by Proposition 13 on property tax increases, revenues might not increase as rapidly as inflationary increases in City costs. If all current sources of revenue associated with the proposed project were held constant (i.e. fees and rates do not change and no new assessments are levied) costs would eventually exceed revenues.[23,24]

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[1]Office employment derived from: San Francisco Department of City Planning, Revised Guidelines for Administering the Housing Requirements Placed on Office Development under OHPP, December 7, 1981. Retail and maintenance employment derived from analysis in: 101 Montgomery Street, FEIR, certified May 7, 1981, page 77.

[2]An estimated $16,500,000 (1983 dollars) would be spent during construction. Employment estimate assumes labor costs would be about 55% of the total (16,500,000 x 55% = 9,075,000) including direct wages, payroll taxes and fringe benefits, and annual cost of $36,400 per construction worker.

[3]All multipliers based on the Bay Area Input-Output Model from Cooperative Extension Service, University of California, Berkeley, San Francisco Bay Area Input-Output Model 1967-1974. This is the equivalent of a multiplier of 1.55 in that for each person-year of employment supported by project construction, an additional 1.55 person-years of secondary employment would be supported.

[4]Office Use: $\frac{136,900 \text{ net new square feet}}{250} \times 40\% \div 1.8 = 122$

San Francisco Department of City Planning, Revised Guidelines for Administering the Housing Requirements Placed on Office Development under OHPP, December 7, 1981, page 5.

[5]Recht Hausrath & Associates, The Feasibility of Performing a Housing Affordability Analysis Relevant to Office Growth in Downtown San Francisco, July 1982.

[6]Questor Associates, Feasibility of Performing a Housing Affordability Analysis, June 15, 1982. This study is available for public review at the San Francisco Department of City Planning, 450 McAllister Street, 5th Floor.

[7]Department of City Planning, Downtown Plan Draft EIR, EE 81.3, March 16, 1984, pages IV.B.17-IV.B.31 and Appendix G, pages G.37-G.41.

[8]For a description of the methodology used to forecast residence patterns, see Appendix I, Downtown Plan DEIR, EE81.3, published March 16, 1984, pages I.8 - I.30. For a description of existing and forecast future residence patterns of C-3 District workers, see Downtown Plan DEIR, Section IV.D, Residence Patterns Housing. Appendix I and Section IV.D of the Downtown Plan DEIR are hereby incorporated by reference into this EIR pursuant to Section 15149 of the CEQA Guidelines.

[9]Downtown Plan DEIR, page I.36.

Only the forecasts of residence patterns for C-3 District office workers are described here. The Downtown Plan DEIR presents residence patterns for all C-3 District workers, of which office workers represent the largest group.

The forecasts presented here are for all C-3 District office employment, including management/technical and trade/customer service office activities.

[10] Downtown Plan DEIR, page IV.B.34

[11] There are two primary reasons for the differences in the estimates of office workers living in San Francisco as derived from the two formulas. One is that they include different assumptions about the increase in office workers living in San Francisco (40% in the OHPP formula as compared to 15-30% in the 101 Montgomery EIR formula). The 101 Montgomery EIR formula includes the low estimate (15%) to adjust for the fact that some increase in downtown office workers will include individuals who already live in San Francisco when they become newly employed in a downtown office job. The 101 Montgomery Street Final EIR is hereby incorporated by reference into this EIR pursuant to Section 15149 of the CEQA Guidelines.

It should be noted that both formulas above were derived from earlier databases. Therefore, the Downtown Plan DEIR analysis and forecasts are not identical to the formulas. Procedures for applying that analysis on a project basis have not been developed. However, the results of applying such a revised formula would likely fall within the range identified by the two existing formulas described herein.

[12] See Downtown Plan DEIR, pp. IV.D. 76-77 for a discussion of reasons why increases in the number of City residents working in the C-3 District do not necessarily represent corresponding increases in the number of households. This section is herein incorporated by reference.

[13] As explained in the Downtown Plan DEIR, the use of existing space is expected to intensify by the year 2000. As a result, office employment is forecast to exceed the growth of employment accommodated by the development of office space. For example, from 1990 to 2000, more intensified use of existing space to accommodate employment growth would be equivalent to about a 40 percent increase in the net addition of office space forecast for that period. (See page IV.B.41 in Downtown Plan DEIR.)

[14] This subsection presents a summary of the discussion in the Downtown Plan DEIR. (See pages IV.D.77-IV.D.82.)

[15] Downtown Plan DEIR, pages IV.C. 52-53 and VII.C. 9-10.

[16] Based on current assessed evaluation plus construction costs.

[17] San Francisco businesses with over $250,000-$500,000 in gross receipts (depending on which of the 15 classifications includes their firm) or over $45,450 in reported taxable payroll pay either of two taxes. The gross receipts tax is calculated by applying the rate specific to a firm's business classification to the firm's gross receipts; rates range from one dollar per $1,000 to two dollars per $1,000. The payroll tax is calculated by applying a rate of 1.1% to a firm's reported taxable payroll. Each firm is supposed to calculate its tax based on both methods and pay the larger amount of the two.

[18] Based on employee-generated local retail sales of $1,287 per employee per year.

[19]Based on information presented in 101 Montgomery FEIR, EE 80.26, certified May 7, 1981, page 83, sales tax revenue to San Francisco, which receives 1% of gross retail receipts, is estimated to be $2.66 per square foot of retail space. This estimate is based on an estimated 3,097,000 square feet of commercial area in the C-3-0 district and 1980-1981 allocation of $8,250,000 in Sales Tax Revenue (Gruen Gruen + Associates, page 111, City and County of San Francisco Appropriations Ordinance (1980-1981) and Arthur Andersen & Company, Table 11-4).

[20]Bruce Bernhard, San Francisco Utilities Commission, The Marginal Cost of Peak Muni Passenger Trips per Unit of Office Space, February 1981. 77 x $.39 x 260 working days a year = $7,808. The deficit for Muni operations is the difference between the total cost of Muni operations and the amounts generated by fare box revenue and state and federal grants/subsidies.

[21]Bruce Bernhard, San Francisco Public Utilities Commission, conversation, January 18, 1982.

[22]Department of City Planning , 101 Montgomery FEIR, EE 80.26, certified May 7, 1981, page 42, 60 rides x 260 working days x 1.3 = $20,280.

[23]Ibid., certified May 7, 1981, Appendix C, pages 316 to 318.

[24]In addition, the project sponsor may be required to pay a one-time Transit Impact Fee. This fee requires developers of office projects in San Francisco to contribute to a fund to finance the increased costs of Muni services necessitated by their projects on the rate of $5 per gross square foot of new construction. The legality of this Ordinance is being challenged and currently pending in San Francisco Superior Court. If the fee is actually administered at the $5 rate, the project could yield $684,500.

V. MITIGATION MEASURES WHICH WOULD MINIMIZE THE POTENTIAL IMPACTS OF THE PROJECT

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the proposed project. Some of these measures have been or would be adopted by the project sponsor or project architects and contractors (mitigation measures included as part of the project and presented in the Initial Study are reproduced below), some may be implemented by public agencies, and the remainder are not included in the project. The City Planning Commission could require that some or all of these measures be included as conditions of project approval, if found to be warranted.

Each mitigation measure and its status is discussed below. Where a measure has not been included in the project, the reasons for this are discussed.

A. TRANSPORTATION

MITIGATION MEASURES INCLUDED IN THE PROPOSED PROJECT

The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to minimize interference with pedestrian traffic.

Within a year of full occupancy of the project, the project sponsor would conduct a survey, in accordance with methodology approved by the Department of City Planning, to assess actual trip generation patterns of project occupants and actual pick-up and drop-off areas for car pools and van pools. The project sponsor would make this survey available to the Department. This measure would provide needed information to aid in transportation planning within the City. Alternatively, at the request of the Department, the sponsor would provide a fair and equitable in-lieu contribution toward an overall transportation survey for the downtown area to be conducted by the City.

Secure, safe bicycle storage facilities would be provided relative to the demand generated by the project for commuters and short-term visitors.

The project sponsor would participate in a special assessment district to be created in order to maintain Ecker Street pedestrian treatments. Construction activities would be coordinated with the rebuilding of Ecker Street to ensure that the design treatments along the Ecker Street frontage would be consistent with those approved by the Board of Supervisors.

Should Ordinance No. 224.81, which would require the sponsor to contribute funds for maintaining and augmenting transportation service in an amount proportional to the demand created by the project, be declared invalid by the courts, the project sponsor would participate in any subsequent equivalent mitigation measures adopted in lieu thereof that are equitable and legal, which the City adopts to apply to all developments which are similarly situated.

During the construction period, construction truck movement would be permitted only between 9:00 a.m and 4:00 p.m. to minimize peak-hour traffic conflicts. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, with Muni and with the Office of Environmental Review to determine feasible traffic mitigation measurses to reduce traffic congestion during construction of this project and other nearby projects. The sponsor would to the extent possible also maintain pedestrian access along Stevenson and Ecker Streets.

A member of the building management staff would be designated as a "transportation broker" to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak period congestion by planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART and Muni passes to employees; and encouraging employee car pool and van pool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for car pool and van pool information. This measure would reduce the transportation impacts of the project. Specifically, traffic generation and parking demand would be reduced.

MITIGATION MEASURE NOT INCLUDED IN THE PROPOSED PROJECT

The City could adopt and implement the transportation improvements described in the Downtown Plan. Should the Downtown Plan not be implemented, the City could act to implement the transportation mitigation measures described in Section V.E., Mitigation of the Downtown Plan Draft EIR. The Downtown Plan is presently under review: action on the Plan is expected by the City Planning Commission during Summer 1984. If approved by the Commission, some of the Implementing Actions would need approval by other decisionmakers, as described in Section V.E. of the Downtown Plan Draft EIR.

B. AIR QUALITY

MITIGATION MEASURES INCLUDED IN THE PROPOSED PROJECT

Measures which would reduce traffic volumes or congestion would also reduce air pollutant emissions. These include encouragement of transit use by employees, flexible work hours, preferential parking for carpools, vanpools and bicycles, and contribution of funds for maintaining and augmenting transit service. Also, construction vehicle traffic would be prohibited during peak traffic hours.

The California Health and Safety Code requires that measures be taken to minimize dust generation, specifically, watering of demolition materials and soils. An effective watering program (complete coverage twice daily) can reduce emissions by about 50%. The project sponsor would require the contractor to implement a twice-daily watering program, which would reduce airborne construction dust and particulates by about 50% and reduce the likelihood of exceeding the state and federal standards.

C. WIND

MITIGATION MEASURES INCLUDED IN THE PROPOSED PROJECT

Exceedences of the comfort criterion for southwest winds are not a result of the 49 Stevenson project, but are predicted with the cumulative construction of either or both the proposed 71 Stevenson and 562 Mission projects. Changes to the 49 Stevenson design would not reduce winds below the comfort criterion unless these cumulative impacts were also adequately mitigated. Nonetheless, the project incorporates design chacteristics which would reduce wind impact and improve pedestrian comfort. The project's use of multiple large setbacks from the Ecker Street frontage would elevate wind accelerations

caused by the project above pedestrian levels. The covered pedestrian walkway along the Stevenson and Ecker Street frontage would offer shelter from rain and wind.

D. CULTURAL AND HISTORIC RESOURCES

MITIGATION MEASURE INCLUDED IN THE PROPOSED PROJECT

Should evidence of cultural or historic artifacts of significance be found during project excavation, the Environmental Review Officer and the President of the Landmarks Preservation Advisory Board would be notified. The project sponsor would select an archaeologist or other expert to help the Office of Environmental Review determine the significance of the find and whether feasible measures, including appropriate security measures, could be implemented to preserve or recover such artifacts. The Environmental Review Officer would then recommend specific mitigation measures, if necessary, and recommendations would be sent to the State Office of Historic Preservation. Excavation or construction which might damage the discovered cultural resources would be suspended for a maximum of four weeks to permit inspection, recommendation and retrieval, if appropriate.

E. CONSTRUCTION NOISE

MITIGATION MEASURES INCLUDED IN THE PROPOSED PROJECT

The project sponsor would incorporate two measures to reduce pile driving noise: predrill the pile holes and install shrouds around the piles to block noise. These measures could reduce the noise level by 10-15 dBA. This mitigation measure would reduce noise levels to a point where conversation and telephone use would not be impaired in adjacent spaces with fixed glazed windows. Telephone use and concentration would be interfered with in offices and commercial spaces with operable windows across Ecker Street. The project contractor would limit pile driving to the hours when it would least disturb the greatest number of neighboring uses. The project sponsor would notify Golden Gate University of pile driving hours to enable the University to also have the option of rescheduling classes in classrooms not fronting Jessie Street.

F. ENERGY

MITIGATION MEASURES NOT INCLUDED IN THE PROPOSED PROJECT

Potential mitigation measures considered as part of the design process would include, but not necessarily be limited to, the following:

- increased use of daylighting
- passive solar features
- load shedding
- individual utility metering
- individual fan units on each floor
- parabolic lighting
- high-efficiency ballasts for fluorescent lighting
- high-efficiency motors
- economizer cycle on air handlers
- computerized energy management
- fluorescent lighting (wattmisers) with switching from four bulbs per fixture to two
- energy-efficient outdoor lighting
- timed switches on closet and storeroom lights

Final decisions would be made on the basis of life cycle costing and compatibility with the overall design; a separate report would be prepared and made available to the Department of City Planning prior to the application for the building permit which would explain the decisions regarding which energy conservation features would be included in the final design.

G. GEOLOGY AND SEISMICITY

MITIGATION MEASURES INCLUDED IN THE PROPOSED PROJECT

During excavation, the project contractor would mechanically sweep streets adjacent to the site to prevent siltation of storm drains. The contractor would construct catchment basins on-site to trap silt and debris for later transportation to dumps.

To facilitate penetration of soils with a minimum of noise and vibration from pile driving, the pile locations would be predrilled.

Surrounding structures would be underpinned as necessary.

H. DOWNTOWN FIRE PROTECTION SERVICES/HAZARDS

MITIGATION MEASURES INCLUDED IN THE PROPOSED PROJECT

The project would provide access to both Stevenson and Ecker Streets via two separate stairwells located on the south side of the building.

An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to ensure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project's plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance by the Department of Public Works of final building permits.

I. HOUSING

MITIGATION MEASURE INCLUDED IN THE PROPOSED PROJECT

The City Planning Commission's Office Housing Production Program stipulates mitigation of housing impacts. The project is estimated to add demand for 122 housing units. The project sponsor would cause 122 housing units to be constructed off-site.

VI. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

The following are suggested significant impacts subject to final determination by the City Planning Commission as part of their certification process. Chapter VI. of the Final EIR will be revised, if necessary, to reflect the Commission's findings.

This chapter identifies impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the proposed project, or other mitigation measures that could be implemented, as described in Chapter V., Mitigation Measures, page 151.

Cumulative Office Development

The office project would be part of a trend of denser development in the South of Market area and in downtown San Francisco. The office project together with other projects under review, approved or under construction in the downtown would add to cumulative traffic increases south of Market Street and cumulative increases in passenger loadings on BART, Muni and other transit systems.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the proposed project, discusses the environmental impacts associated with these alternatives and reasons why the alternatives were rejected by the sponsor in favor of the project. Regardless of the sponsor's reasons for rejection, the City Planning Commission could approve an alternative over the proposed project if the Commission believes the alternative is more appropriate for the site.

A. ALTERNATIVE ONE: NO-PROJECT

1. Description

This alternative would involve no change to the project site as it now exists. The three structures located at 49, 53 and 55 Stevenson would remain in use for an unspecified length of time. No demolition would occur and the buildings would continue to be occupied.

In order to consider adaptive reuse of the existing structures all buildings would be required to conform with all sections of the San Francisco Building Code (i.e., Seismic, Plumbing, Electric, Structural and Fire Codes). A complete evaluation would be required by licensed engineers before renovation costs and structural recommendations could be analyzed. Since the sponsor purchased the property with the intent of demolishing all exsiting structures, an estimation of the extent of renovation or associated costs is unavailable.

2. Environmental Impacts

With the retention of the project site in its present state, none of the impacts associated with the proposed 49 Stevenson Street project would occur. The existing transportation and air quality conditions (see Section III.D. Transportation, page 40; and III.E. Air Quality, page 43) would continue on streets around the site. The peak hour level of service on the streets would remain unchanged and Muni load factors would be slightly lower than if the proposed project were implemented. Current levels of parking demand,

noise, air pollution, energy consumption, wind and visual effects would not change as a result of the project but could be subject to cumulative impacts associated with planned development in the project area.

3. Reasons For Rejection

The project sponsor has rejected this alternative because the site currently contains three buildings at a combined effective FAR of 3.7:1, and, in the opinion of the project sponsor, would perpetuate an inefficient and wasteful use of land resources within the City's central business district. This alternative would not provide maximum investment potential of the site.

B. ALTERNATIVE TWO: PROJECT CONSISTENT WITH THE PROPOSED DOWNTOWN PLAN

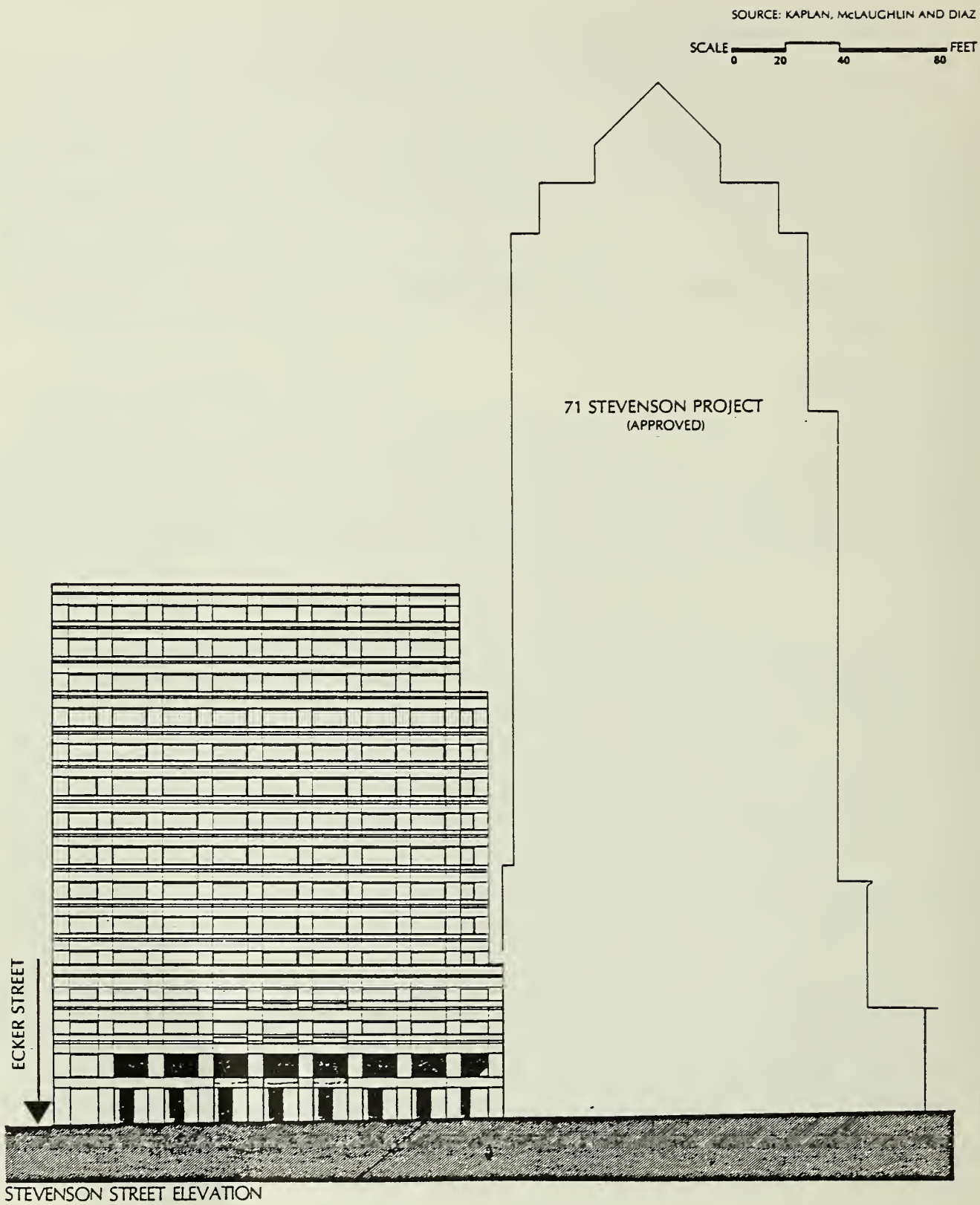
1. Description

The Department of City Planning's document "The Downtown Plan"[1] contains a series of regulatory proposals managing development in downtown San Francisco. The proposals address the design, size and location of major buildings as well as recommendations for housing, transportation, architectural preservation, open space, sunlight access and the overall objectives for growth in the downtown area.

Under proposals in the Downtown Plan, buildings in the C-3-0 district may have a FAR of 10:1; thus the allowable gross floor area for the site would be 128,400. In addition, the Plan proposes a maximum height of 500 feet for the site and new bulk controls that would apply to four components of a structure: the base, lower tower, upper tower and upper tower extension. The controls require a volume reduction that would decrease the bulk of a building as the building increases in height. The design effects of the new bulk controls are more readily apparent in structures taller than that proposed for this alternative. For developments proposed along Stevenson Street the Plan specifies a mandatory sidewalk widening of four feet that is to be achieved by incorporating arcades into the design.

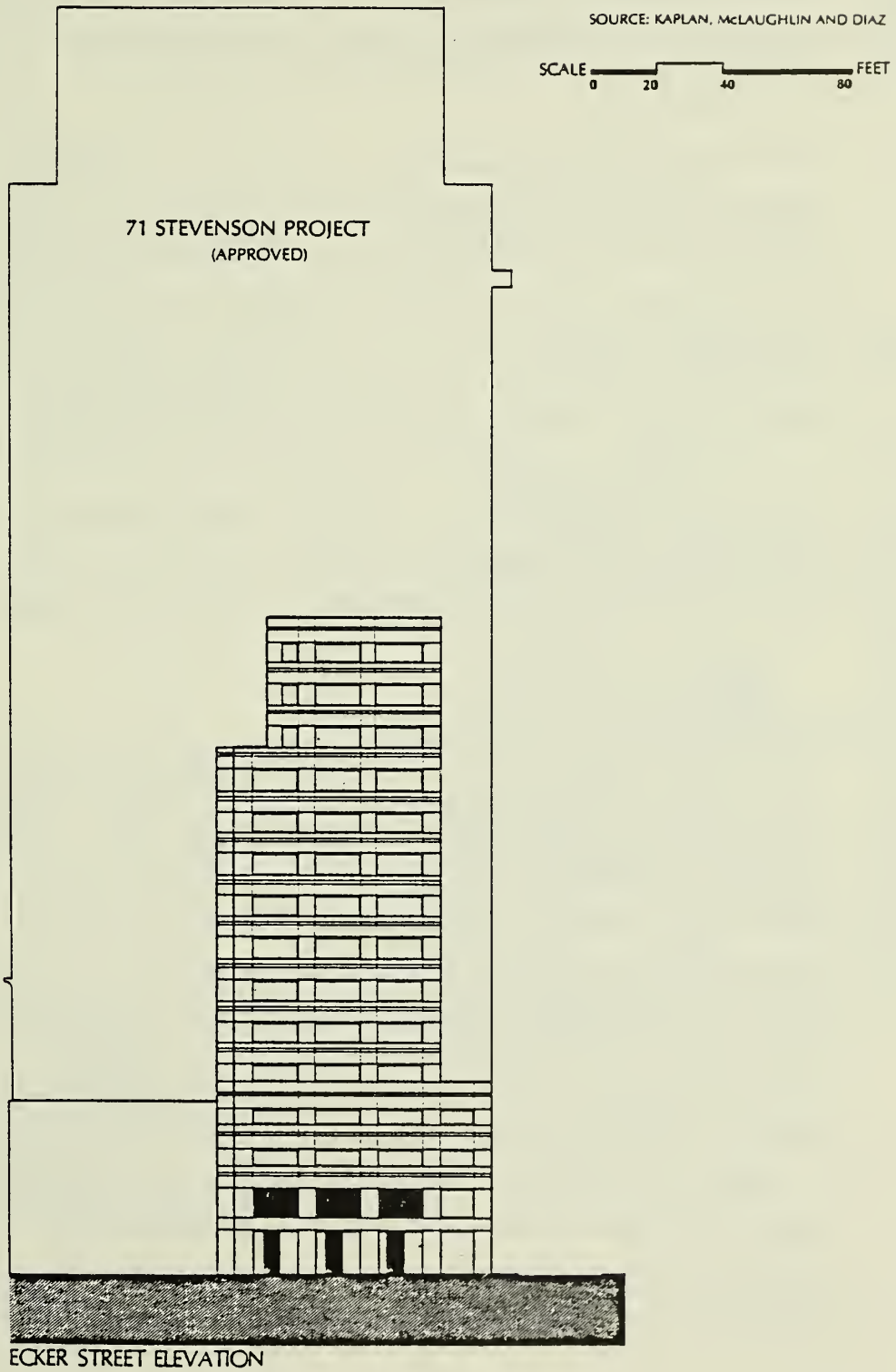
A project designed to conform with controls as proposed in the Downtown Plan would rise 191 feet to the top floor (16 stories) and contain approximately 119,300 gross square feet (gsf) of office space (86,600 gsf net new office space) and 10,000 gsf of commercial space; no off-street parking would be provided (see Figures 31 and 32, pages 160 and 161). The

THE DOWNTOWN PLAN ALTERNATIVE: STEVENSON STREET ELEVATION



STEVENSON STREET ELEVATION

THE DOWNTOWN PLAN ALTERNATIVE: ECKER STREET ELEVATION



ECKER STREET ELEVATION

gross floor area for this alternative would be approximately 128,300 gsf, about 28% less than for the proposed project. The Downtown Plan excludes all retail uses on the ground floor in a C-3-0 district from calculations of allowable gross floor area.[2] Thus, the total floor area noted above for this alternative excludes the 2,300 gsf of ground floor retail space. Pursuant to the Plan's urban form provision of a 14-foot setback from the property line at a height of 60 feet, this alternative would have one setback on the Stevenson Street side at the fifth level. As with the proposed project, commercial space would be provided on the first two levels with office space above.

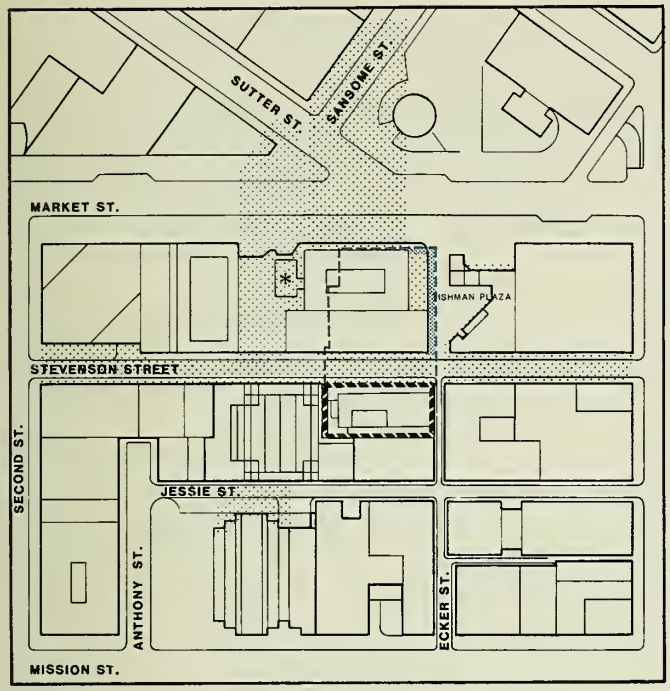
Under the Downtown Plan, projects in the C-3-0 district would be required to provide one square foot of usable open space for each 50 square feet of building area. This alternative would provide about 3,500 square feet of open space within the arcade which extends, as for the proposed project, the entire length of the building facade. The Department of City Planning has determined that arcades do not qualify; therefore, the requirement would be met by alternate Plan mechanisms such as the development of usable open space on public land or contribution to the Open Space Acquisition and Park Renovation Fund.

The Downtown Plan requires .1 off-street loading space per 10,000 square feet of gross floor area for office space; no space is required for less than 10,000 square of retail space. This alternative would provide two loading docks as required by the Plan.

2. Environmental Impacts

Visual impacts would differ from the proposed project in that this alternative contains only one setback on the Stevenson Street side of the building instead of the project's multiple setback, tiered design on the Ecker Street side. The design and massing of this alternative would give it a bulky, box-like appearance. The 62-foot reduction in height (32%) would reduce its visibility from distant and close viewpoints compared to the project. Since this alternative would be shorter than the proposed project, its shadows would be proportionately reduced in length. However, the simpler, bulkier shape of the building under this alternative would cast wider shadows than those from the proposed project (see Figures 33 through 36, pages 163 through 166). Shadow impacts on Tishman and Chevron Plazas would be reduced on June 21 at 10:00 a.m. but they would be greater on March 21 at 10:00 a.m. and September 21 at noon. Shadow impacts on these plazas would be similar to the proposed project on December 21 at 10:00 a.m. and noon and on March 21 at noon. Shadow impacts from this alternative at all other times of the year would not impact either Tishman Plaza or Chevron Plaza.

ALTERNATIVE TWO SHADOW PATTERNS: MARCH 21 (PST)



10 A.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

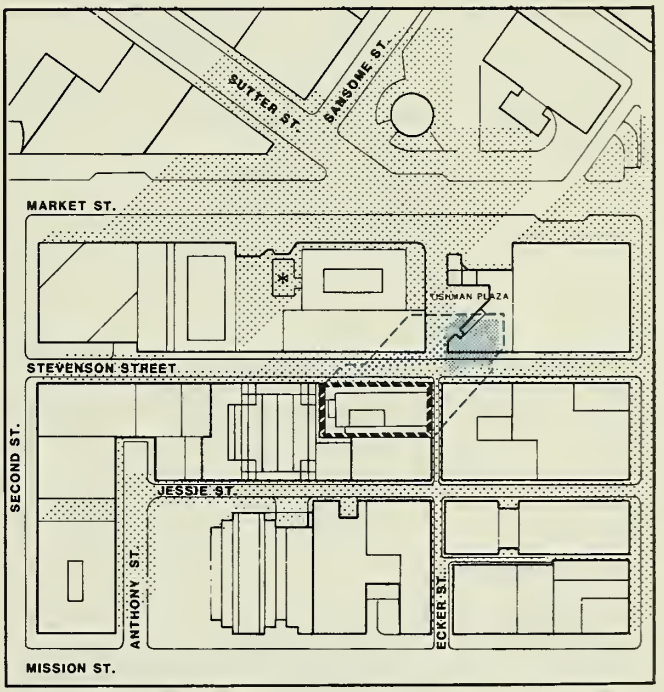
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

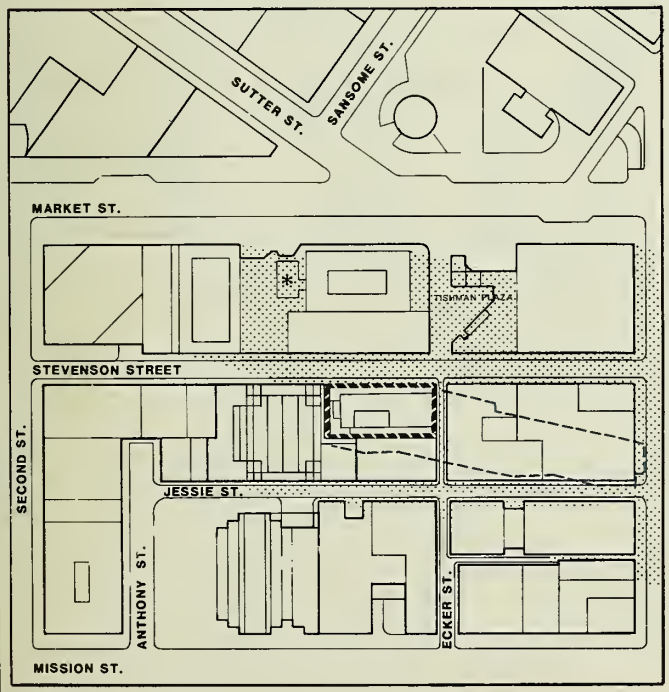
PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

FEET 0 100 200 400

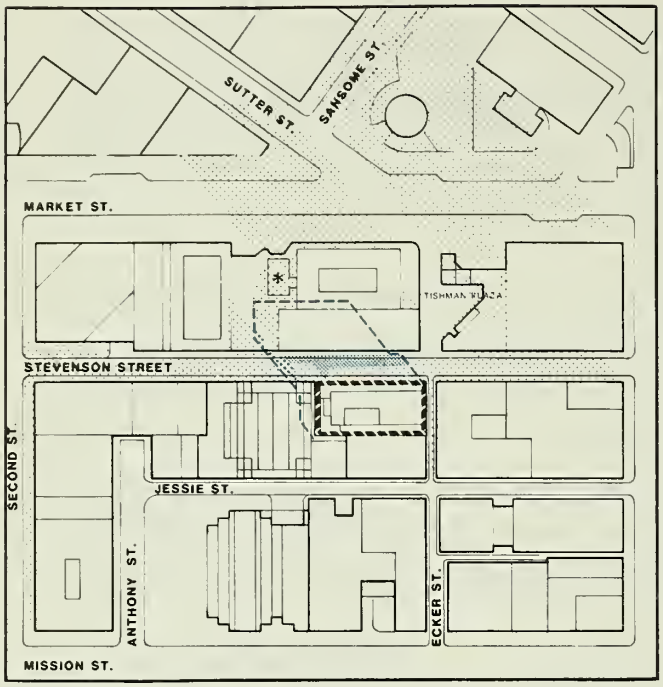


12 Noon



3 P.M.

ALTERNATIVE TWO SHADOW PATTERNS: JUNE 21 (PDT)



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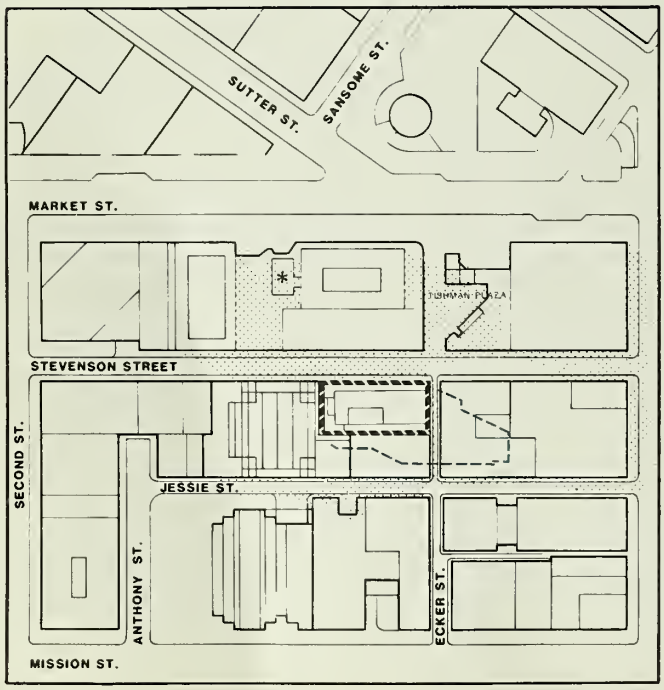


3 P.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

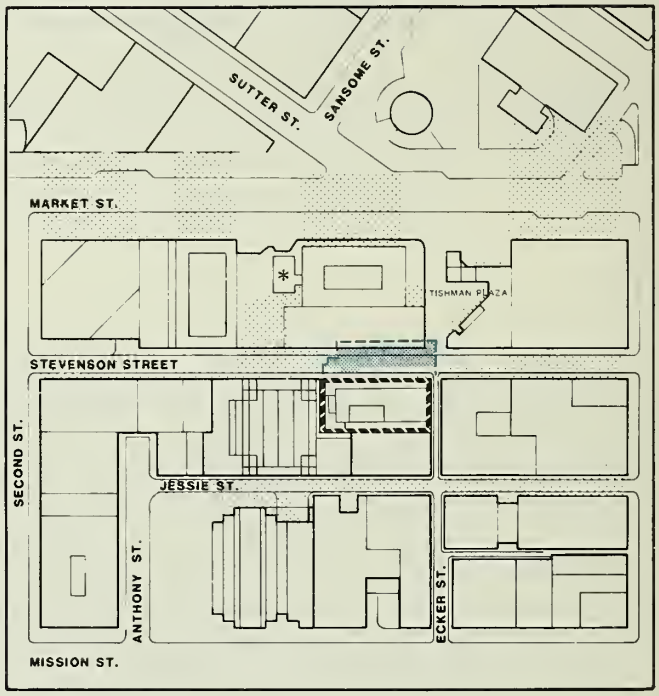
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

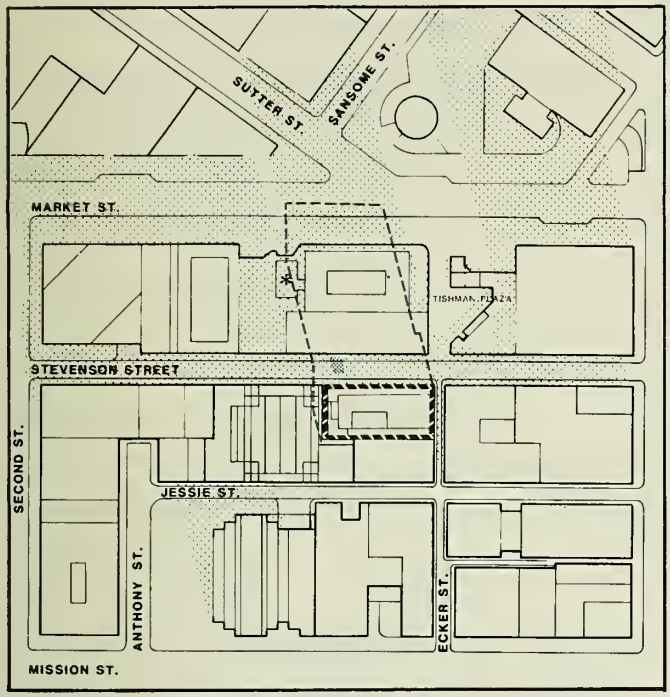
SOURCE EIP CORPORATION

FEET 0 100 200 400



12 Noon

ALTERNATIVE TWO SHADOW PATTERNS: SEPTEMBER 21 (PDT)



10 A.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

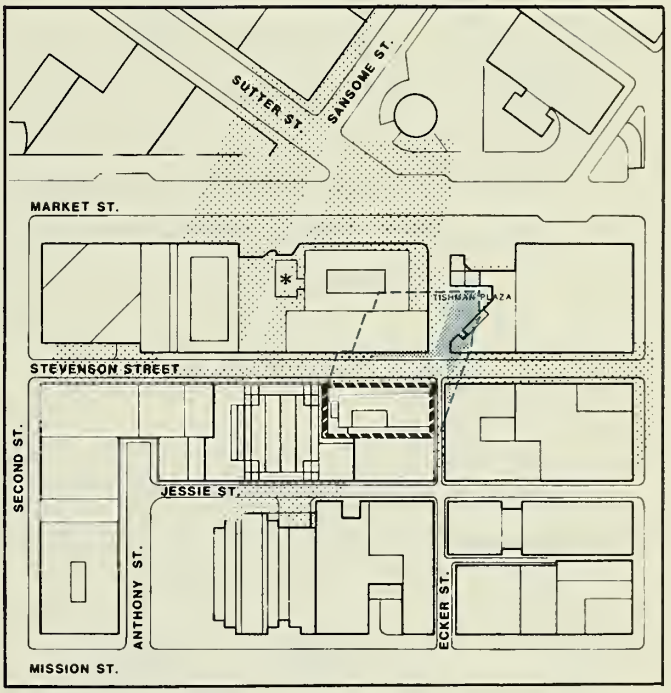
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

FEET 0 100 200 400



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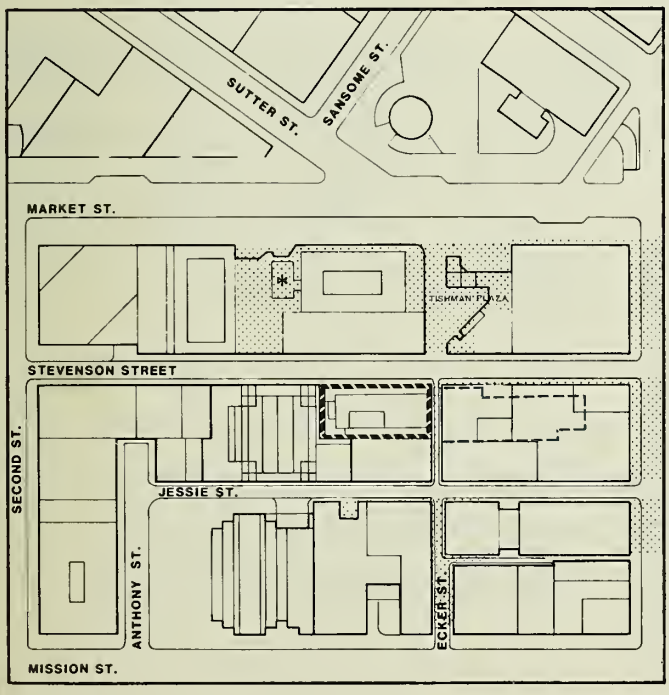
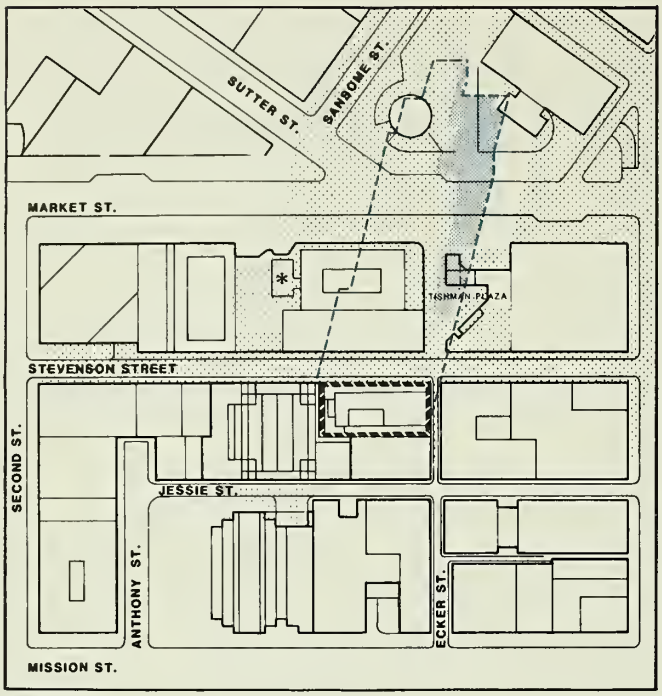


3 P.M.

ALTERNATIVE TWO SHADOW PATTERNS: DECEMBER 21 (PST)



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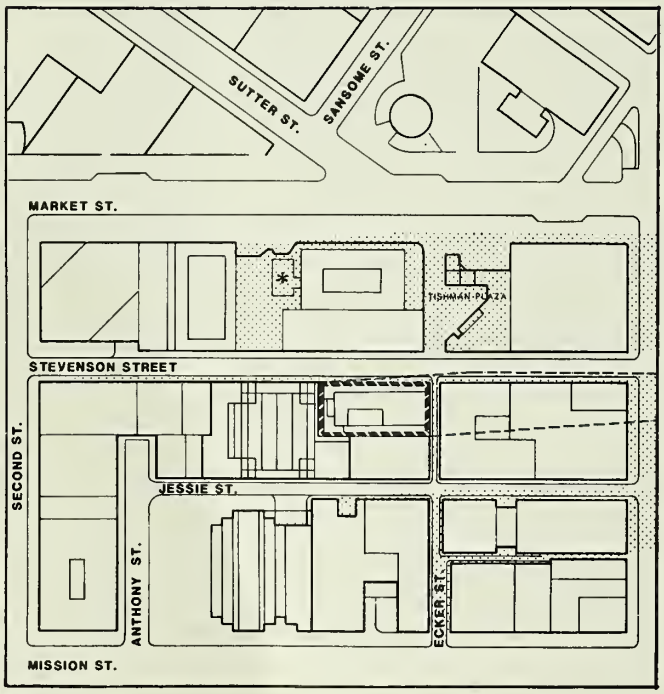


3 P.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

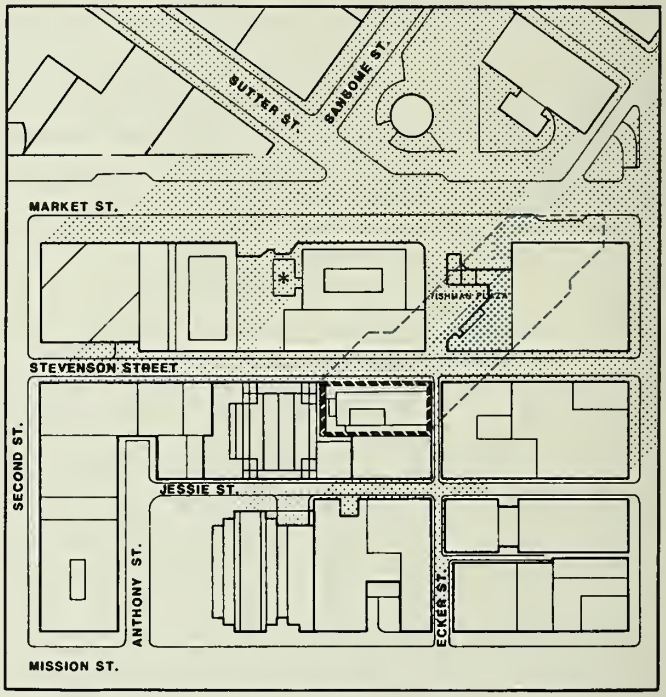
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

FEET 0 100 200 400



12 Noon

The Downtown Plan proposes to strengthen, protect and enhance street scale and ensure daylight to narrow streets by providing distinctive building bases with street walls in harmony with the height of existing street walls. Both the proposed project and Downtown Plan alternative would provide a transitionally-scaled building base that would be similar in height with One Ecker Street and compatible with the recently approved 71 Stevenson project design. The street wall proposed by the Plan would provide a continuous, 14-foot setback along Stevenson Street, whereas the proposed project would provide a transition to a street facade plane similar to 71 Stevenson Street.

The 37% reduction in net new office space would generate 43% fewer daily person trips and 42% fewer peak hour trips. Transit and pedestrian load factors and levels of service would also decrease proportionally. Employment-related impacts of this alternative would be less than those of the proposed project, as would noise, fiscal impacts, energy consumption, housing demand, and public service demands, due to the reduced size of this alternative.

The Downtown Plan endorses the City Planning Commission's Office Housing Production Program (OHPP) formula for calculating a housing requirement based upon the proportion of net new office space. According to OHPP's formula, the housing requirement for this alternative would be 77 housing units.[3] Under this alternative, the sponsor would adhere to the OHPP requirement by causing up to 77 housing units to be constructed off-site.

3. Reasons For Rejection

This alternative was rejected by the project sponsor because it does not provide the amount of office space permitted by the existing Planning Code. The sponsor believes that the reduction in available office space could increase rental costs and limit the return on project investment.

C. ALTERNATIVE THREE: ALTERNATIVE MIXED-USE

1. Description

This alternative would consist of a structure that would be identical to the proposed project except the second floor would contain office instead of retail space. Thus, this alternative would contain approximately 175,700 gsf of office space (143,000 gsf net new office space) and 3,700 gsf of retail space.

2. Environmental Impacts

This alternative would provide about 4% more office space and 62% less commercial space than the proposed project. This increase in office space and decrease in commercial space would generate about 39% fewer (net new) daily person trips and about 37% fewer (net new) peak-hour trips than the proposed project. Travel by auto and transit would be about 10% less than in the proposed project while pedestrian trips would fall below current levels generated by the site's retail use. Project-related noise and cumulative air quality impacts would be increased but not by any measurable magnitude. Demand for public services and energy would be likely to increase slightly due to the proportional increase of office space. Visual, wind and sun-shading impacts would be the same as for the proposed project.

According to the OHPP formula, the housing requirement for this alternative would be 127 units.[4] Like the proposed project, the sponsor would adhere to the OHPP requirement by causing up to 127 housing units to be constructed off-site.

3. Reasons for Rejection

The project sponsor has rejected this alternative because at this time the sponsor prefers the mixed-use ratio of the proposed project and feels that two levels of commercial floor area would provide for more design-related pedestrian amenities.

D. ALTERNATIVE FOUR: DESIGN CASTING NO SHADOWS ON TISHMAN PLAZA

1. Description

The Downtown Plan recognizes the need to maintain a comfortable pedestrian environment and, therefore, promotes building forms that will maximize the sun access to open spaces and other public areas. To that end, the Plan states that buildings to the south, east and west of parks and plazas should be limited in height and oriented so that direct sunlight access can be maintained during critical periods.[5]

This alternative responds to the Downtown Plan by having a structure designed to avoid shading Tishman Plaza between the hours of 11 a.m. and 2 p.m. from March 21 (spring equinox) to September 21 (fall equinox). Thus, design considerations would limit this alternative's height to 103 feet (eight stories), and its total square footage to 72,900 gsf including 57,700 gsf of office space (25,000 gsf net new office space) and 9,800 gsf of

retail space (see Figures 37 and 38, pages 170 and 171). The first and second level of this alternative would be identical to the proposed project in design and square footages assigned to retail, loading and service areas. As with the proposed project, the lobby, retail space and dumpster storage/freight loading facilities with two loading docks would be located on the first floor; the second floor would contain retail space (see Figures 4 and 5, pages 12 and 13). Office space would be provided on the remaining six floors. Starting at the third level, floors of the structure would be progressively stepped inward from the Ecker and Stevenson Street facades at the fourth and sixth levels. The gross floor area for this alternative would be 67,500 gsf (about 62% less than the proposed project) for an effective FAR of 5.3:1.

2. Environmental Impacts

Visual impacts would differ from the proposed project in that the 150-foot difference in height would substantially alter visual impressions of the structure from upper levels of nearby highrises and decrease its overall visibility from close and distant viewpoints. This alternative would fall below the skyline profile of the 71 Stevenson Street building and would be more consistent with older, low-rise structures south of Stevenson Street.

As shown in Figures 39 through 41, pages 172 through 174, shadows cast by this alternative structure would not affect Tishman Plaza from 11 a.m. to 2 p.m. on March 21, June 21 or September 21. These dates represent the greatest degree of shadow impact for the spring, summer and fall months. The Plaza receives the greatest volume of pedestrian use from 11 a.m. to 2 p.m.

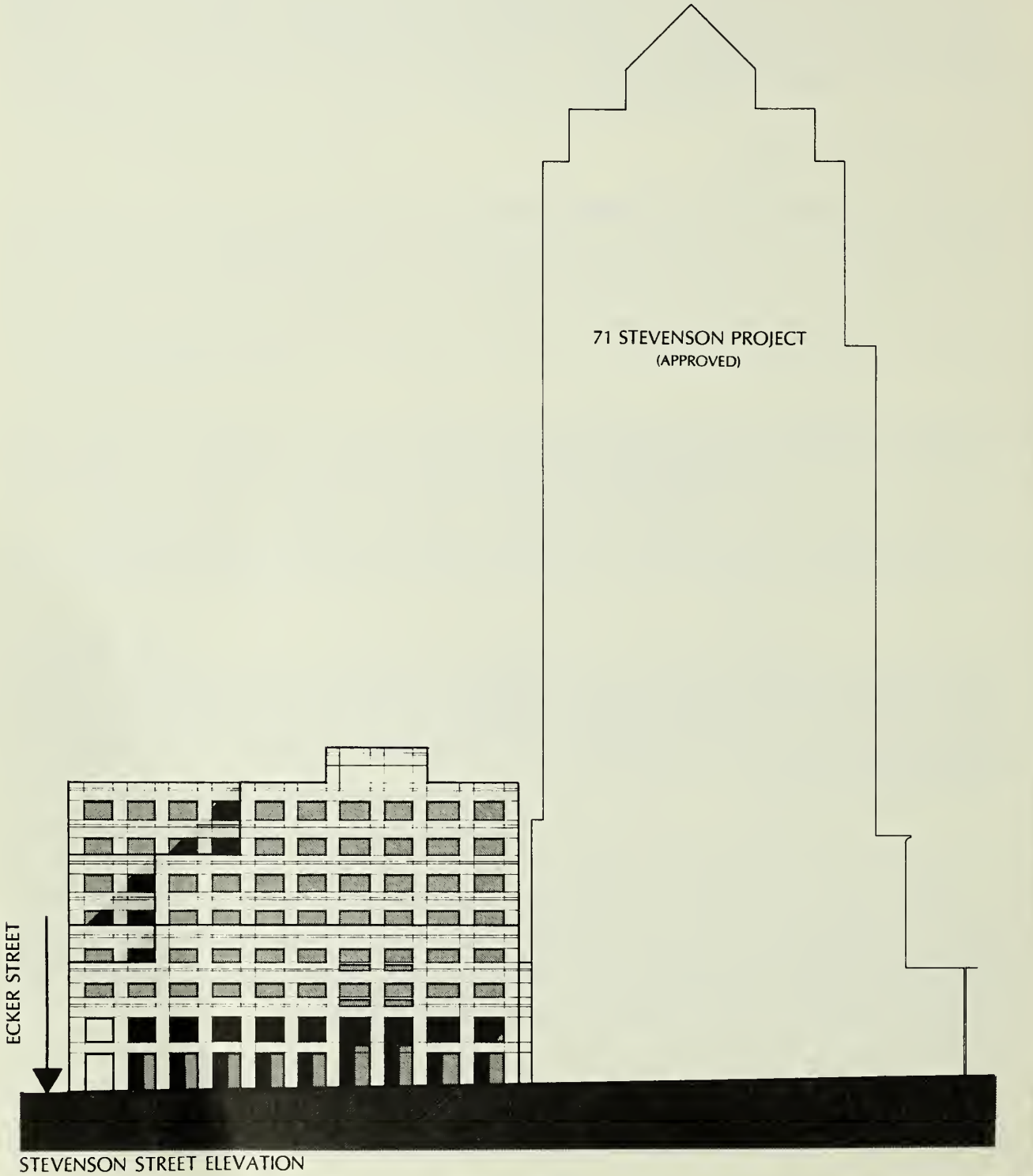
The 25,000 gsf increase in net new office space (coupled with the net reduction in retail area) would result in this alternative generating about the same person trips as now generated by the site.[6] Transit, pedestrian load factors and levels of service would also decrease proportionally.

At full operation, this alternative would provide an estimated 94 net new permanent jobs for office, retail and janitorial maintenance functions (83% fewer than the proposed project). Other impacts such as construction noise, revenues, energy consumption, cumulative air quality and public service demands would be proportionally less than for the proposed project due to the reduced size of this alternative.

ALTERNATIVE CASTING NO SHADOWS ON TISHMAN PLAZA: STEVENSON STREET ELEVATION

SOURCE: KAPLAN, McLAUGHLIN AND DIAZ

SCALE 0 20 40 80 FEET

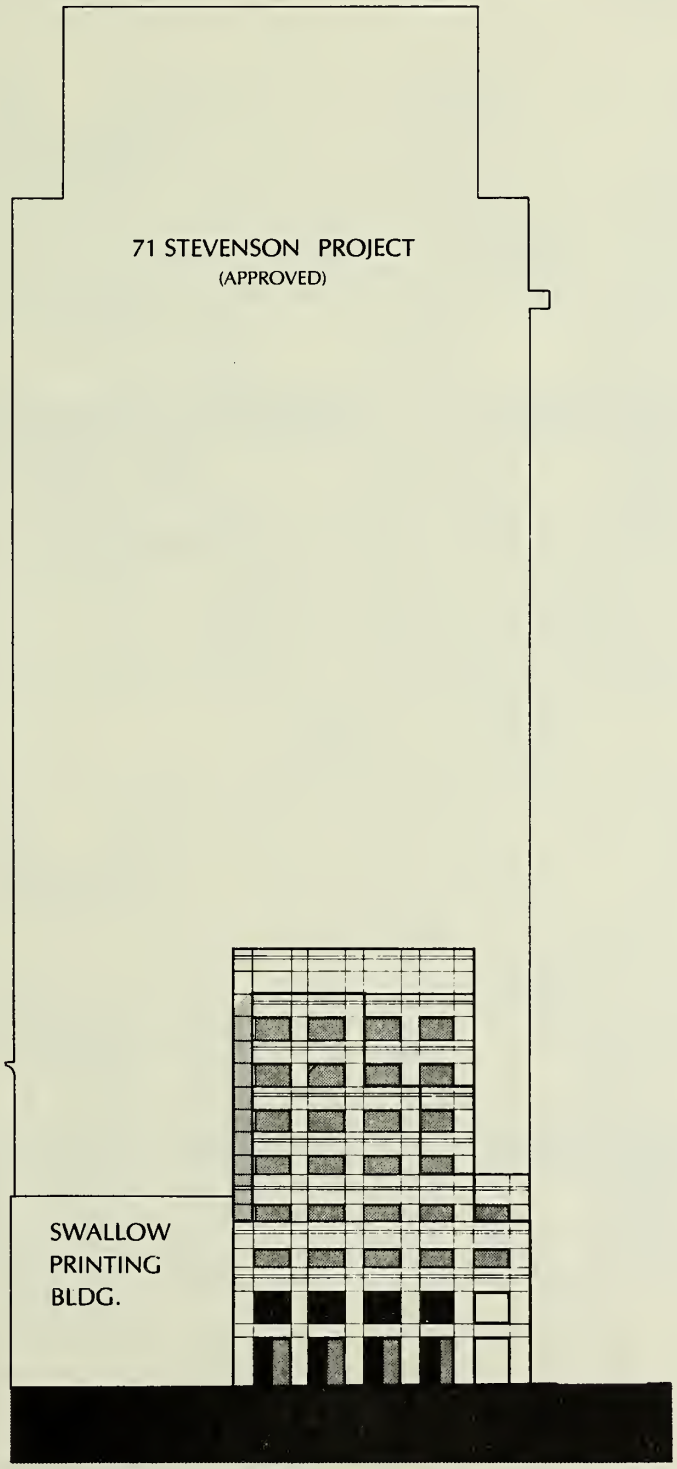


STEVENSON STREET ELEVATION

ALTERNATIVE CASTING NO SHADOWS ON TISHMAN PLAZA: ECKER STREET ELEVATION

SOURCE: KAPLAN, McLAUGHLIN AND DIAZ

SCALE 0 20 40 80 FEET



ECKER STREET ELEVATION

ALTERNATIVE FOUR SHADOW PATTERNS: MARCH 21

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

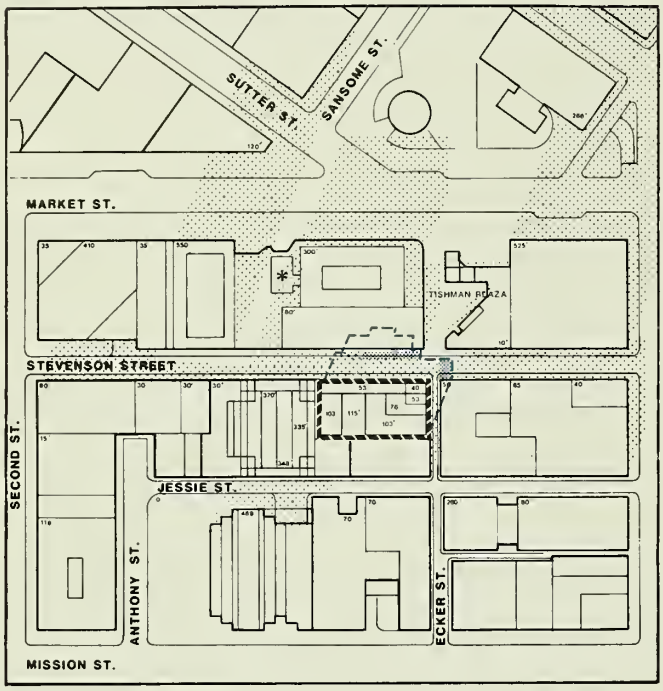
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane) - - - - - - -

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

SCALE 0 100 200 400 FEET



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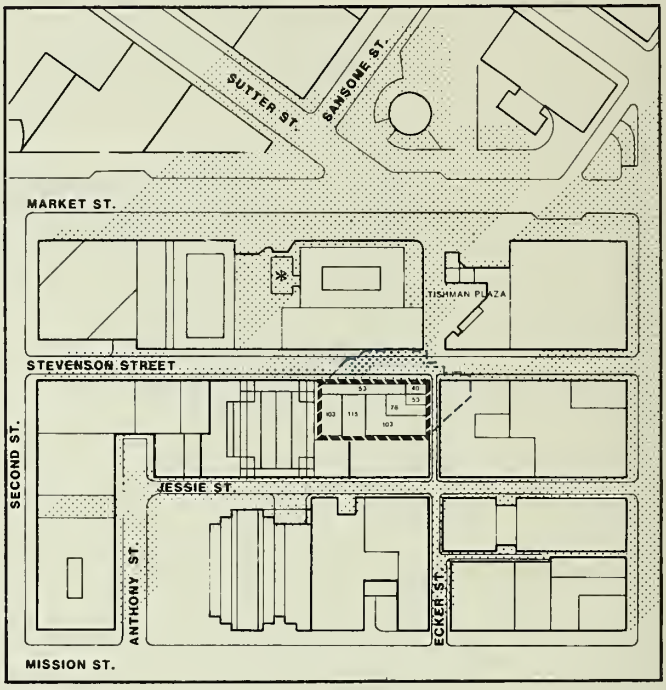
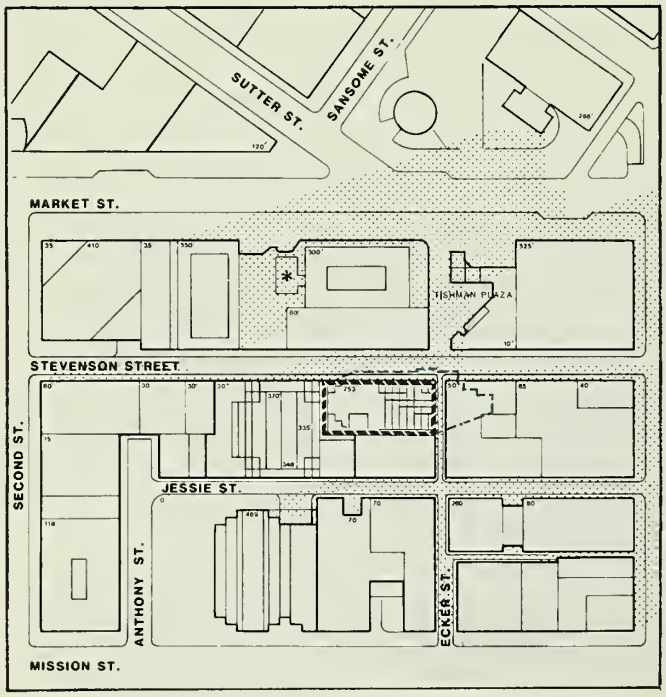


12 Noon



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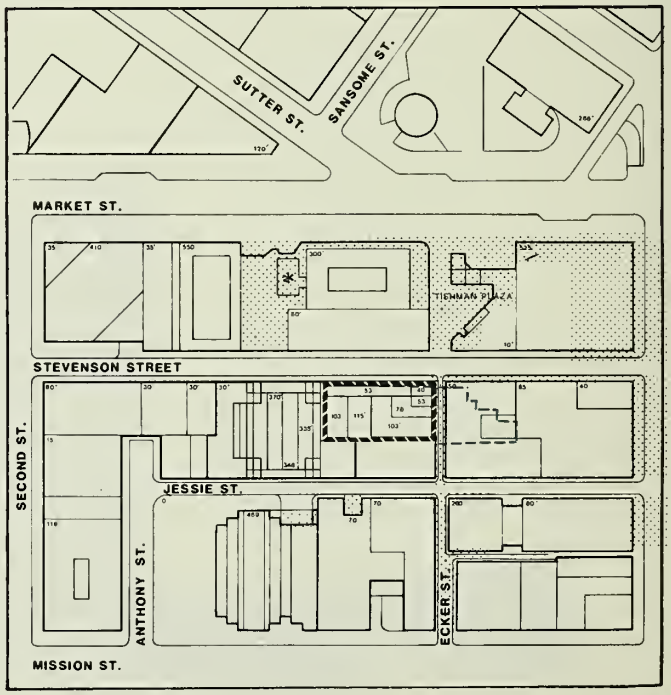


2 P.M.

ALTERNATIVE FOUR SHADOW PATTERNS: JUNE 21

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

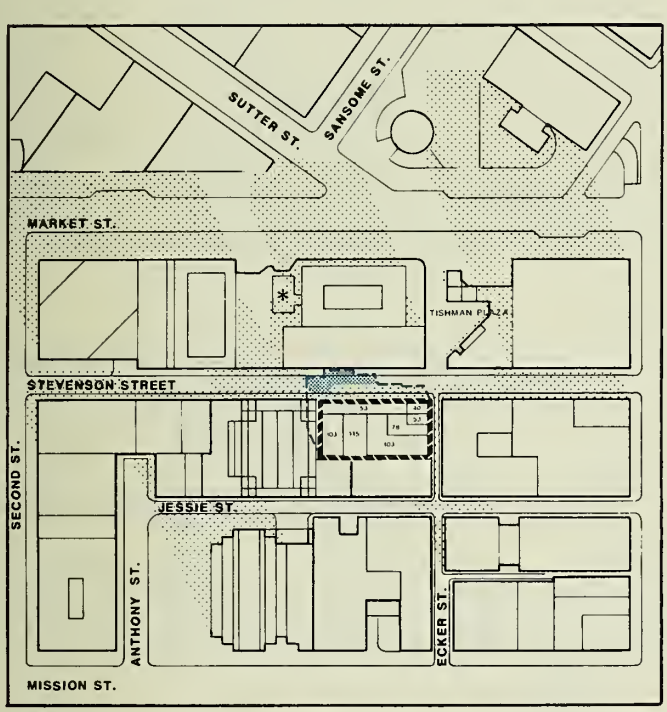
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

SCALE 0 100 200 400 FEET



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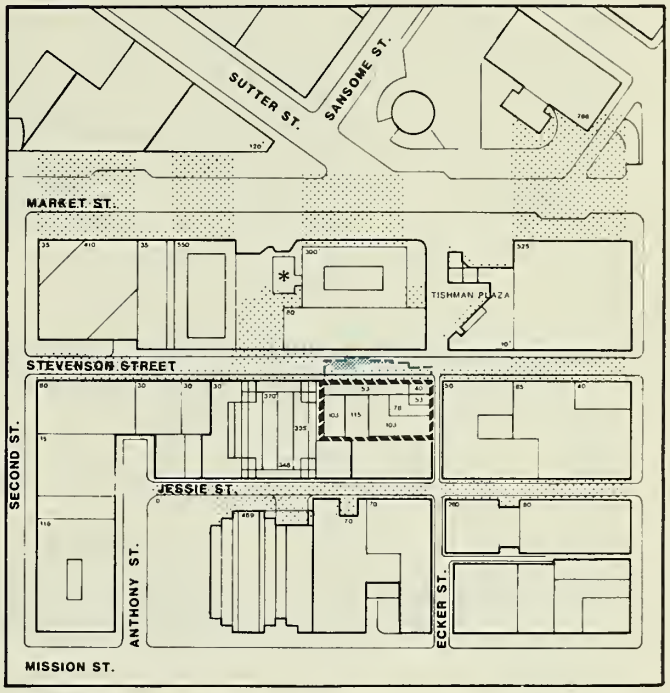

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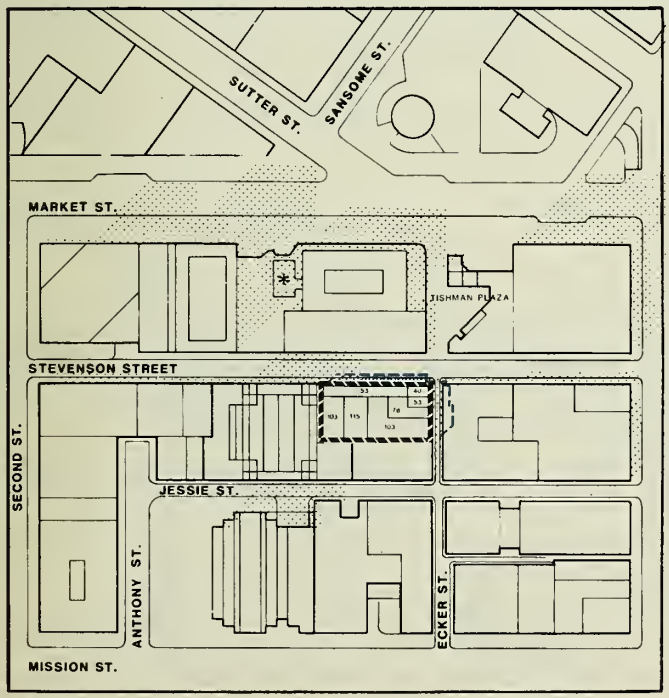

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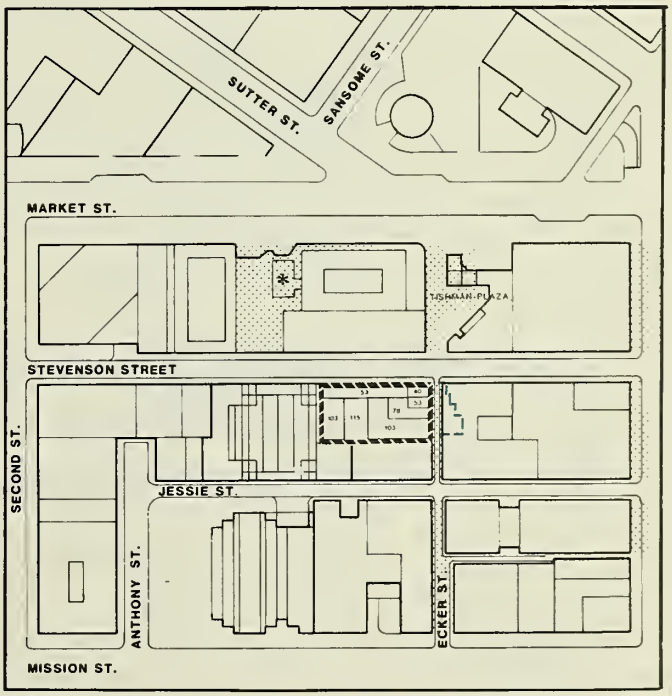


2 P.M.

ALTERNATIVE FOUR SHADOW PATTERNS: SEPTEMBER 21

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

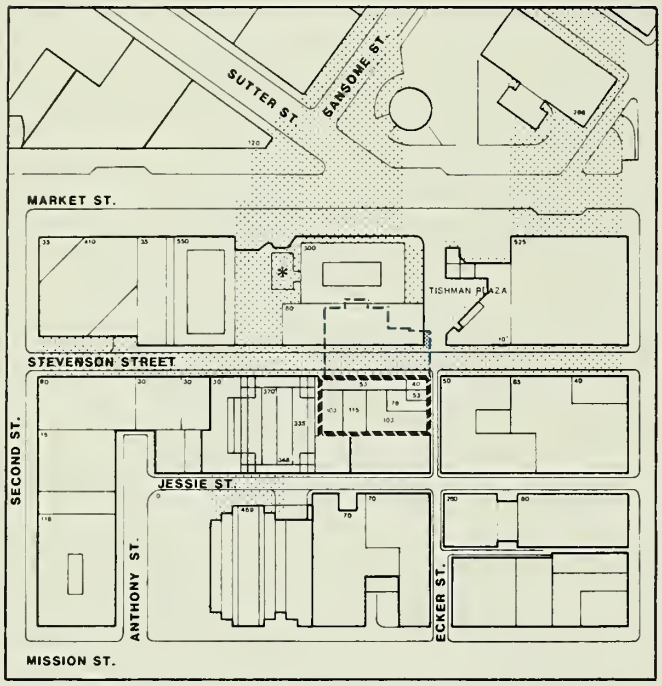
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

SCALE 0 100 200 400 FEET



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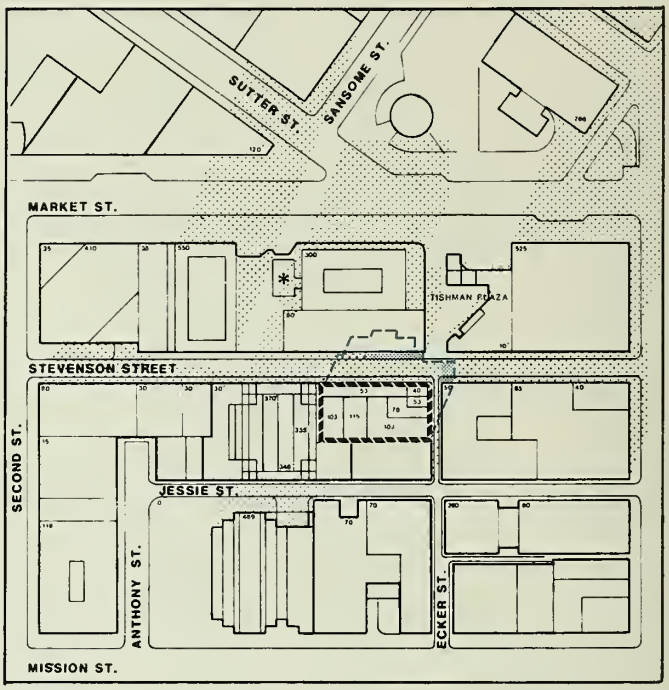
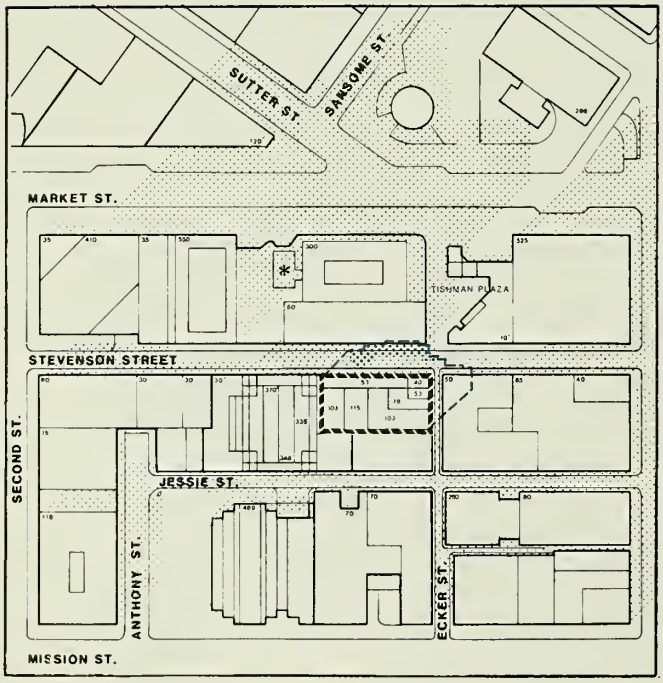


12 Noon



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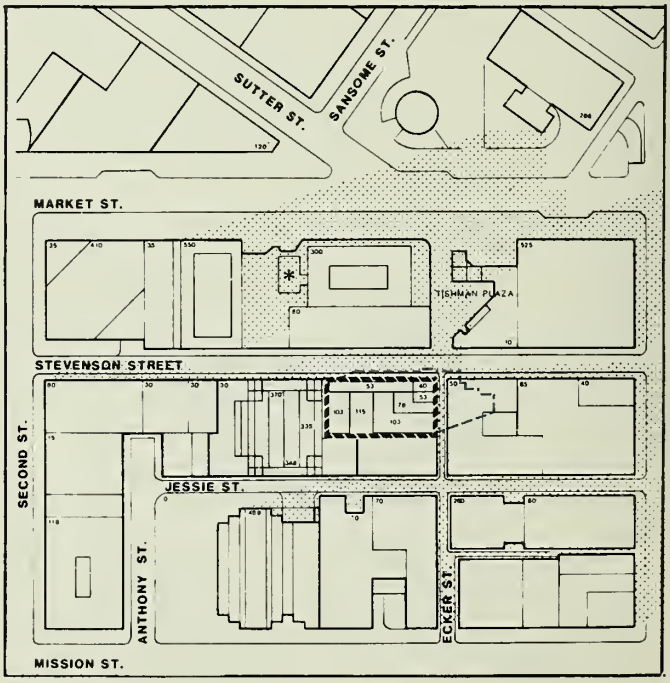

2 P.M.

According to the OHPP formula, the housing requirement for this alternative would be 22 units[7]. Like the proposed project, the sponsor would adhere to the OHPP requirement by causing up to 22 units to be constructed off-site.

3. Reasons for Rejection

The project sponsor has rejected this alternative because the 62% reduction in overall floor space and 82% reduction in net new office space would not, in the sponsor's opinion, realize a reasonable return on his investment and would, in fact, result in no project. The sponsor believes that the size, shape and location of the project site create development parameters that severely restrict the development potential of the site. The project has undergone a number of design changes in order to reduce shadow impacts on Tishman Plaze. The sponsor feels the proposed project provides the appropriate balance between the degree of shadows cast and the investment potential of the site.

---

[1]San Francisco Department of City Planning, The Downtown Plan, A Proposal for Citizen Review, August 1983.

[2]Ibid., page 29.

[3]San Francisco Department of City Planning, Revised Guidelines for Administering the Housing Requirements Placed on Office Development under OHPP, December 7, 1981, page 5.

119,300 gross square feet(gsf) of office space
-32,700 gsf of existing office space
86,600 gsf of net new office space

$$\frac{86{,}600 \text{ gsf}}{250} \times 40\% \div 1.8 = 77 \text{ housing units}$$

[4]Ibid.

$$\frac{143{,}000 \text{ gsf}}{250} \times 40\% \div 1.8 = 127 \text{ housing units}$$

[5]San Francisco Department of City Planning, The Downtown Plan, page 99.

[6]Project Person Trip Generation:

Land Use		Daily Trip Rate	Daily Trips	Peak Hour Rate	Peak Hour Trips	Peak 2 Hour Rate	Peak 2 Hour Trips
25,000	net gross sq.ft. office	18.1/1,000	455	1.9/1,000	50	3.0/1,000	75
(2,900)	net gross sq.ft. retail	150/1,000	(435)	15/1,000	(45)	30/1,000	(90)
	Net Totals		20		5		0

Source: DCP, Guidelines for Environmental Review: Transportation Impacts, Sept. 1983.

[7]San Francisco Department of City Planning, Revised Guidelines, page 5.

$\frac{25,000 \text{ gsf}}{250} \times 40\% \div 1.8 = 22$ housing units

VIII. EIR AUTHORS AND PERSONS CONSULTED

A. PROPOSED PROJECT AND EIR

Author of Environmental Impact Report

San Francisco Department of City Planning
450 McAllister Street
San Francisco, California 94102
Environmental Review Officer: Alec S. Bash
Assistant Environmental Review Officer: Barbara Sahm
EIR Coordinator: Paul Rosetter

Author of Preliminary Draft Environmental Impact Report

Environmental Impact Planning Corporation
319 Eleventh Street
San Francisco, California 94103
San Francisco Projects Coordinator: Stu During
Project Manager: Suzanne McAdams

Project Sponsor

Northwest Projects Associates Limited Partnership
2815 Mitchell Drive, Suite 200
Walnut Creek, California 94598

Project Architects

Kaplan, McLaughlin and Diaz
222 Vallejo Street
San Francisco, California 94111
Project Architect: James Leake

B. PERSONS CONSULTED

City and County of San Francisco

San Francisco Fire Department
260 Golden Gate Avenue
San Francisco, California 94102
(415) 861-8000
Edward J. Phipps, Assistant Chief
Support Services

San Francisco Department of Public Works
Traffic Engineering Division
460 McAllister Street
San Francisco, California 94102
Kem Hui, Assistant Civil Engineer

San Francisco Public Utilities Commission
City Hall
San Francisco, California 94102
Bruce Bernhard

San Francisco Department of City Planning
450 McAllister Street
San Francisco, California 94102
Gail Bloom, Transportation Planner
David Feltham, Transportation Planner

Other

Pacific Gas & Electric Company
245 Market Street
San Francisco, California 94105
Nancy Ebling
Abdur-Raheem Aleem

California Engineering Commission
Sacramento, California
Al Deterville, Project Administrator

CalTrans
150 Oak Street
San Francisco, California 94102
Scott MacCalden, Senior Engineer
Ben Chuck, Senior Transportation Planner

Bay Area Rapid Transit District
800 Madison Street
Oakland, California 94607
Ward Belding, Planner

Golden Gate Transportation District
1011 Anderson Street
San Rafael, California 94902
Alan Zahradnik, Planner

AC Transit
Division of Planning and Research
1140 45th Street
Emeryville, California 94608
Jeff Allan, Planner

San Mateo Transit District
400 South El Camino Real
San Mateo, California 94402
Jim Deltart, Planner

IX. DISTRIBUTION LIST

FEDERAL AND STATE AGENCIES

State Office of Intergovernmental
Management
State Clearinghouse
1400 10th Street
Sacramento, CA 95814

Don Rake
Air Resources Board
General Projects Section
P.O. Box 2815
Sacramento, CA 95814

REGIONAL AGENCIES

Association of Bay
Area Governments
P.O. Box 2050
Oakland, CA 94604

Irwin Mussen
BAAQMD
939 Ellis Street
San Francisco, CA 94109

California Archaeological
Site Survey Regional Office
N.W. Info Center
Dept. of Anthropology
Sonoma State University
Rohnert Park, CA 94928

Darnall W. Reynolds
Calif. Dept. of Trans.-Bus. & Trans. Agency
P.O. Box 7310
San Francisco, CA 94120

Larry Layne
Calif. Dept. of Trans.-Public Trans. Branch
P.O. Box 7310
San Francisco, CA 94120

CITY AND COUNTY OF SAN FRANCISCO

City Planning Commission
450 McAllister
San Francisco, CA 94102

Lee Woods, Secretary
Toby Rosenblatt, President
Susan Bierman
Roger Boas
Norman Karasick, Alternate
Jerome Klein
Yoshio Nakashima
C. Mackey Salazar
Douglas Wright, Alternate

Landmarks Preservation Advisory Board
450 McAllister Street
San Francisco, CA 94102

Jonathan Malone, Secretary
Patrick McGrew, President
Phillip P. Choy
Elizabeth de Losada
David M. Hartley
Carolyn Klemeyer
Jean E. Kortum
Ann Sabiniano
Walter Sontheimer
John Ritchie

Robert Levy, Superintendent
Bureau of Bldg. Inspection
450 McAllister Street
San Francisco, CA 94102

George Nakagaki, Manager
Water Department, Distribution Div.
425 Mason Street
San Francisco, CA 94102

Joseph Corollo (CULCOP)
c/o GES - Utility Liaison
City Hall, Room 363
San Francisco, CA 94102

CITY & COUNTY (Cont.)

Scott Schoaf
Dept. of Public Works-Traffic Eng. Div.
460 McAllister Street
San Francisco, CA 94102

Edward Phipps
SF Fire Dept., Div. of Planning & Research
260 Golden Gate Avenue
San Francisco, CA 94102

Peter Straus
SF Municipal Railway-Planning Div.
949 Presidio Avenue, Room 204
San Francisco, CA 94115

Barbara Moy, Assistant Director, PUC
Bureau of Energy Conservation
949 Presidio Avenue, Room 111
San Francisco, CA 94115

Tom Jordan, Dir. Bureau Services
Public Utilities Commission
949 Presidio Avenue, Room 150
San Francisco, CA 94115

Wallace Wortman, Dir. of Property
SF Real Estate Dept.
450 McAllister Street, Room 600
San Francisco, CA 94102

Bill Witte, Director
Mayor's Economic Development Council
100 Larkin Street
San Francisco, CA 94102

Deborah Lerner
Recreation & Park Department
McLaren Lodge, Golden Gate Park
Fell & Stanyan Streets
San Francisco, CA 94117

MEDIA

Patrick Douglas
San Francisco Bay Guardian
2700 - 19th Street
San Francisco, CA 94110

Evelyn Hsu
San Francisco Chronicle
925 Mission Street
San Francisco, CA 94103

Gerald Adams
San Francisco Examiner
P.O. Box 7260
San Francisco, CA 94120

E. Cahill Maloney
San Francisco Progress
851 Howard Street
San Francisco, CA 94103

The Sun Reporter
1366 Turk Street
San Francisco, CA 94115

Rob Waters
Tenderloin Times
146 Leavenworth Street
San Francisco, CA 94102

LIBRARIES

Faith Van Liere
Documents Library
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San Francisco, CA 94102

Lin Max
Cogswell College Library
600 Stockton Street
San Francisco, CA 94108

Jean Circiello
EPA Library
215 Fremont Street
San Francisco, CA 94105

Government Documents Section
Stanford University
Stanford, CA 94305

Dora Ng
Government Publications
SF State University
1630 Holloway Avenue
San Francisco, CA 94132

Inst. of Govt. Studies
1209 Moses Hall
UC Berkeley
Berkeley, CA 94720

Hastings College of the Law
Library
198 McAllister Street
San Francisco, CA 94102

GROUPS AND INDIVIDUALS

AIA
San Francisco Chapter
790 Market Street
San Francisco, CA 94102

Bay Area Council
348 World Trade Center
San Francisco, CA 94111

Albert Beck
c/o Geography Department
California State Univ., Chico
Chico, CA 95929

Bendix Environmental
Research, Inc.
1390 Market, #902
San Francisco, CA 94102

Tony Blaczek
Finance Dept., Coldwell Banker
1 Embarcadero Center, 23rd Floor
San Francisco, CA 94111

John E. Bonin
Knowlton Realty, Inc.
1 Embarcadero Center, #2720
San Francisco, CA 94111

Peter Bosselman
Environmental Simulation Lab.
119 Wurster Hall
UC Berkeley
Berkeley, CA 94720

Roger Boyer Associates
215 Leidesdorf
San Francisco, CA 94111

Jonnie T. Jacobs, Esq.
Brobeck, Phleger, Harrison
One Market Plaza
San Francisco, CA 94105

Michael Buck
1333 - 35th Avenue
San Francisco, CA 94122

David Capron
Lincoln Property Co.
222 Sansome Street
San Francisco, CA 94104

Dale Carlson
369 Pine Street, #800
San Francisco, CA 94104

Kent Soule
Chickering & Gregory
3 Embarcadero Center, 23rd Floor
San Francisco, CA 94111

Coalition for SF Neighborhoods
Mrs. Dorice Murphy
175 Yukon St.
San Francisco, CA 94114

Joseph Cortiz
2853 - 22nd Street
San Francisco, CA 94110

Calvin Dare
Cushman Wakefield
555 California, #2700
San Francisco, CA 94104

DKS Associates
1419 Broadway, Suite 700
Oakland, CA 94612-2069

Rita Dorst
RB International Services
9 Boston Ship Plaza
San Francisco, CA 94111

Lloyd Pflueger
Downtown Association
582 Market Street
San Francisco, CA 94105

Downtown Senior
Social Services
295 Eddy Street
San Francisco, CA 94102

Michael V. Dyett
Blayney-Dyett
70 Zoe Street
San Francisco, CA 94103

Leslie deBoer
EPR, Inc.
649 Front Street
San Francisco, CA 94111

GROUPS AND INDIVIDUALS (Cont.)

Jo Julin
ESA
1291 E. Hillsdale Blvd., Suite 300
Foster City, CA 94404

Connie Parrish
Friends of the Earth
1045 Sansome Street, #404
San Francisco, CA 94111

Grant Dehart
Heritage
2007 Franklin Street
San Francisco, CA 94109

Charles Gill
The Aspen Group West, Inc.
505 Sansome St., Suite 1005
San Francisco, CA 94111

Annette M. Granucci
Commercial News Publishing Co.
125 Twelfth Street
San Francisco, CA 94103

Gruen,Gruen & Associates
564 Howard Street
San Francisco, CA 94105

James D. Hall
101 Lombard Condominiums
San Francisco, CA 94111

Donald Head & Associates
109 Minna Street, #293
San Francisco, CA 94105

Robert L. Gibney, Jr.
Heller, Ehrman, White & McAuliffe
44 Montgomery St., 32nd Fl.
San Francisco, CA 94104

Valerie Hersey
Munselle-Brown
950 Battery
San Francisco, CA 94111

Sue Hestor
4536 - 20th Street
San Francisco, CA 94114

Carl Imparato
1205 Garfield
Albany, CA 94706

Gordon Jacoby
Jefferson Associates
683 McAllister Street
San Francisco, CA 94102

Robert Fan, Lee & Fan
Architecture & Planning, Inc.
580 Market Street, Suite 300
San Francisco, CA 94104

Brent Kato
Legal Assistance to the Elderly
333 Valencia Street, 2nd Floor
San Francisco, CA 94103

Carol Lester
Lawyers Title Company of SF
300 Montgomery St., Suite 1135
San Francisco, CA 94104

Doug Longyear
Finance Dept. Coldwell Banker
1 Embarcadero Center, 23rd Floor
San Francisco, CA 94111

Rolf Wheeler
Marathon U.S. Realties, Inc.
595 Market St., Suite 1330
San Francisco, CA 94105

Robert Meyers Associates
582 Market Street, Suite 1208
San Francisco, CA 94104

Leland S. Meyerzove
KPOO - FM
P.O. Box 6149
San Francisco, CA 94101

Susan Pearlstine
Pillsbury, Madison & Sutro
P.O. Box 7880
San Francisco, CA 94120

Gloria Root
Planning Analysis & Dev.
530 Chestnut Street
San Francisco, CA 94133

GROUPS AND INDIVIDUALS (Cont.)

Mrs. G. Bland Platt
339 Walnut Street
San Francisco, CA 94118

Charles Hall Page & Associates
364 Bush Street
San Francisco, CA 94104

James Reed
Charter Commercial Brokerage
875 Battery Street
San Francisco, CA 94111

Deborah McNamee
Research & Decisions Corp.
375 Sutter Street, Suite 300
San Francisco, CA 94108

David P. Rhoades
120 Montgomery Street, Suite 1600
San Francisco, CA 94104

Mrs. H. Klussman, Pres.
San Francisco Beautiful
41 Sutter Street
San Francisco, CA 94104

Stanley Smith
San Francisco Building & Construction
Trades Council
400 Alabama Street, Room 100
San Francisco, CA 94110

Richard Morten
SF Chamber of Commerce
465 California Street
San Francisco, CA 94105

G. Kirkland, Exec. Director
SF Conv. & Visitors Bureau
201 - 3rd Street, Suite 900
San Francisco, CA 94103

SF Ecology Center
13 Columbus Avenue
San Francisco, CA 94111

San Francisco Junior
Chamber of Commerce
251 Kearny Street
San Francisco, CA 94104

Bernard Speckman
San Francisco Labor Council
1855 Folsom Street
San Francisco, CA 94103

San Francisco Planning &
Urban Research Association
312 Sutter Street
San Francisco, CA 94108

David Jones
San Franciscans for Reasonable Growth
241 Bartlett
San Francisco, CA 94110

Frank Noto
San Francisco Forward
375 Sutter Street, #400
San Francisco, CA 94108

Tony Kilroy
San Francisco Tomorrow
942 Market Street, Room 505
San Francisco, CA 94102

John Sanger & Associates
2340 Market Street
San Francisco, CA 94114

Senior Escort Program
South of Market Branch
814 Mission Street
San Francisco, CA 94103

Becky Evans
Sierra Club
530 Bush Street
San Francisco, CA 94108

South of Market Alliance
74 Langton Street
San Francisco, CA 94103

Square One Film & Video
725 Filbert St.
San Francisco, CA 94133

Wayne Stiefvater
Appraisal Consultants
701 Sutter Street, 2nd Floor
San Francisco, CA 94109

GROUPS AND INDIVIDUALS (Cont.)

John Elberling
TODCO
230 Fourth Street
San Francisco, CA 94103

Rod Teter
Cahill Construction Co.
425 California Street, Suite 2300
San Francisco, CA 94104

Jerry Tone, Loan Officer
Real Estate Industries Group
Wells Farge Bank, N.A.
475 Sansome Street, 19th Floor
San Francisco, CA 94111

Timothy Tosta
333 Market Street, #2230
San Francisco, CA 94105

Jeff Vance
Campeau Corporation
681 Market Street
San Francisco, CA 94105

Kathy Van Velsor
19 Chula Lane
San Francisco, CA 94114

Steven Weicker
899 Pine Street, #1610
San Francisco, CA 94108

Howard Wexler
235 Montgomery, 27th Floor
San Francisco, CA 94104

Paula Jesson
Deputy Director
City Attorney's Office
Room 206, City Hall
San Francisco, CA 94102

Leslie Yee
1531 Powell Street
San Francisco, CA 94133

Marie Zeller
Whisler-Patri
590 Folsom Street
San Francisco, CA 94105

ADJACENT PROPERTY OWNERS

Pearlman Associates
c/o Tishman Realty
10960 Wilshire Blvd.
Los Angeles, CA 90024

Chevron USA Inc.
c/o Manager Property Tax
P.O. Box 7611
San Francisco, CA 94102

575 Market Bldg. Corp.
c/o Standard Oil Prop. Tax Adm.
P.O. Box 7611
San Francisco, CA 94120

Fred Karren
c/o Sol Scherman
50 1st St.
San Francisco, CA 94105

Arnold R. Keiles
11476 Lindy Lane
Cupertino, CA 95014

Claude & Donna Perasso
3055 26th Avenue
San Francisco, CA 94132

N/O Highfield Corp.
c/o G. Gallei-Knowlton Realty
1 Embarcadero Center, #2720
San Francisco, CA 94111

Harvey I. Samuels, Trust
c/o No. Ecker Associates
44 Montgomery St., 5th Floor
San Francisco, CA 94104

Title Insurance & Trust Co.
160 Pine St.
San Francisco, CA 94111

Henry Chan
P.O. Box 26189
San Francisco, CA 94126

APPENDIX A

FINAL INITIAL STUDY*

*Differences among data presented in the following Initial Study and the preceding EIR are attributable to the availability of additional or more precise information during the subsequent preparation of the EIR, and in this case, modifications to the proposed project as well.

APPENDIX A

FINAL INITIAL STUDY

SAN FRANCISCO DEPARTMENT OF CITY PLANNING 450 McAllister St. - 5th Floor

(415)558-5260

NOTICE THAT AN
ENVIRONMENTAL IMPACT REPORT
IS DETERMINED TO BE REQUIRED

Date of this Notice: June 24, 1983

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister St. - 5th Floor, San Francisco CA 94102

Agency Contact Person: Diane Oshima **Tel:** (415) 558-5260

Project Title: 83.75E Office Building **Project Sponsor:**

Project Contact Person:

Project Address: 49 Stevenson Street at Ecker Street

Assessor's Block(s) and Lot(s): Lots 38, 39 and 40, Assessor's Block 3708

City and County: San Francisco

Project Description: New construction of a 22-story office building containing approximately 157,000 gross square feet of office space and 14,900 gross square feet of ground floor commercial space, requiring demolition of two structures (one four stories, the other one story), providing no parking spaces.

THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15081 (Determining Significant Effect), 15082 (Mandatory Findings of Significance) and 15084 (Decision to Prepare an EIR), and the following reasons, as documented in the Initial Evaluation (initial study) for the project, which is on file at the Department of City Planning:

Please see the attached Initial Study

Deadline for Filing of an Appeal of this Determination to the City Planning Commission: July 5, 1983.

An appeal requires 1) a letter specifying the grounds for the appeal, and 2) a $35.00 filing fee.

Alec S. Bash, Environmental Review Officer

ER5 6/80

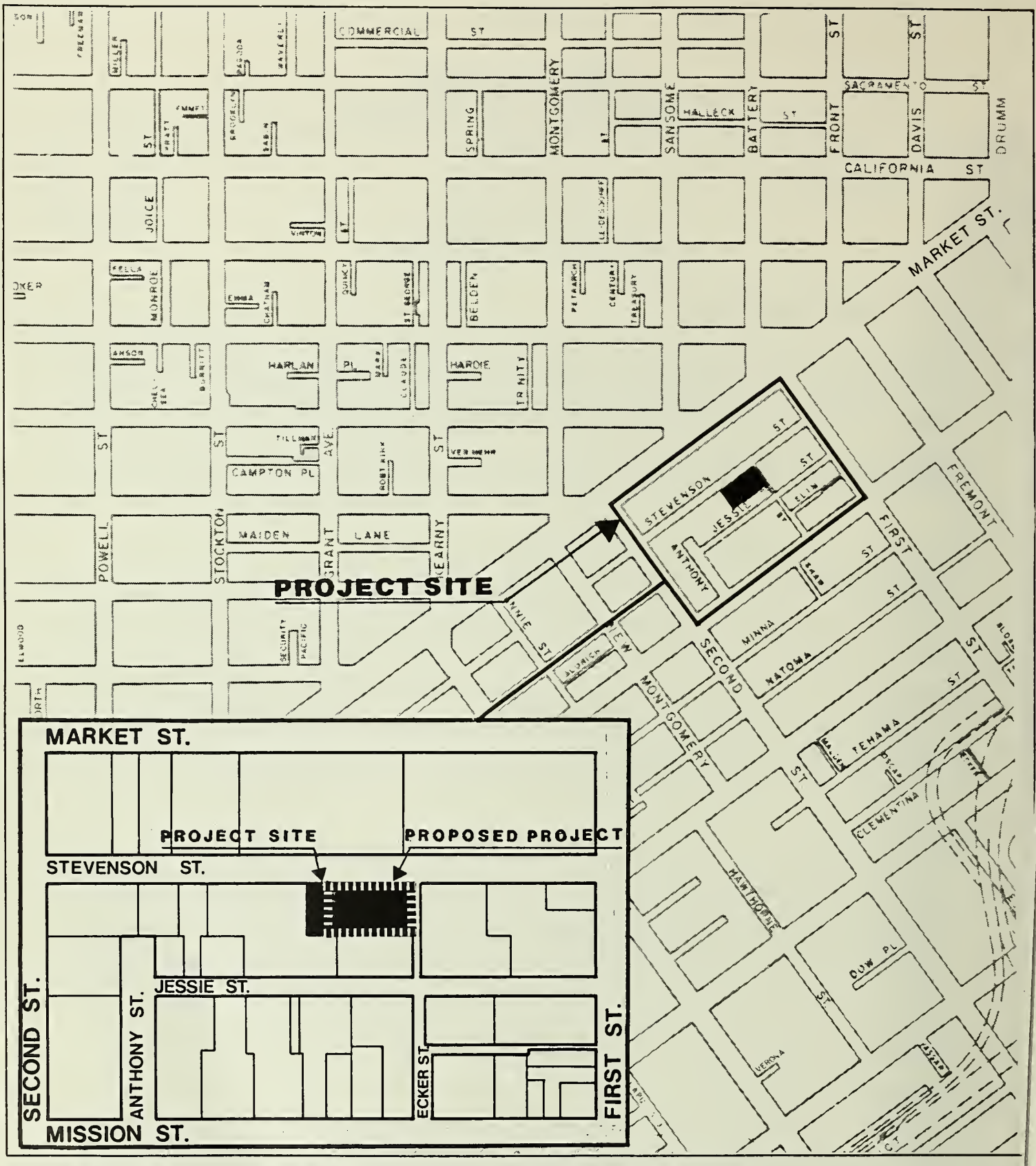
FINAL INITIAL STUDY
49 STEVENSON STREET PROJECT
83.75E
June 24, 1983

I. PROJECT DESCRIPTION

The proposed 49 Stevenson Street project would be a mixed-use development containing retail/restaurant space on the ground and second floors with offices above. The project site is located on Assessor's Block 3708, Lots 38, 39 and 40, and is approximately 12,800 square feet. The site is in a C-3-O (Downtown Office) district, the City's central business district, at the southwest corner of Stevenson and Ecker Streets (Figure 1, page 2).

The proposed project site currently contains three buildings. Lot 40 (49 Stevenson) is currently developed with a four-story, 35,800-square-foot building containing a basement, a ground-floor restaurant and three floors of offices. Lot 39 (53 Stevenson) is developed with a one-story, 1,900-square-foot building, currently occupied by the Yank Sing Restaurant. Both structures would be demolished and replaced with the proposed project; existing businesses would be relocated within the new structure to the extent possible. Lot 38 (55 Stevenson) is developed with a four-story, 7,700-square-foot building, currently containing approximately 1,900 square feet of restaurant space and 5,800 square feet of office space.

The project sponsor, Northwest Projects Associates Limited Partnership, proposes to construct a 22- story office building with utility services in the basement and commercial uses on the ground and second floors (Figure 2, page 3). The total structure, including office, commercial, mechanical and service space, would comprise approximately 186,500 gross square feet and rise 288 feet above grade (excluding mechanical penthouse). Of the gross square footage, about 157,000 square feet of office space and 14,900 square feet of commercial space would be provided. The proposed project would not provide parking. Pedestrian and handicap access to the ground floor of the proposed building would be from both Stevenson and Ecker Streets; pedestrians would also be able to enter at the second level via escalator from Ecker Street. Access to the project's two loading docks would be from Stevenson Street. The project architect is Clifford Moles Associates of San Francisco.

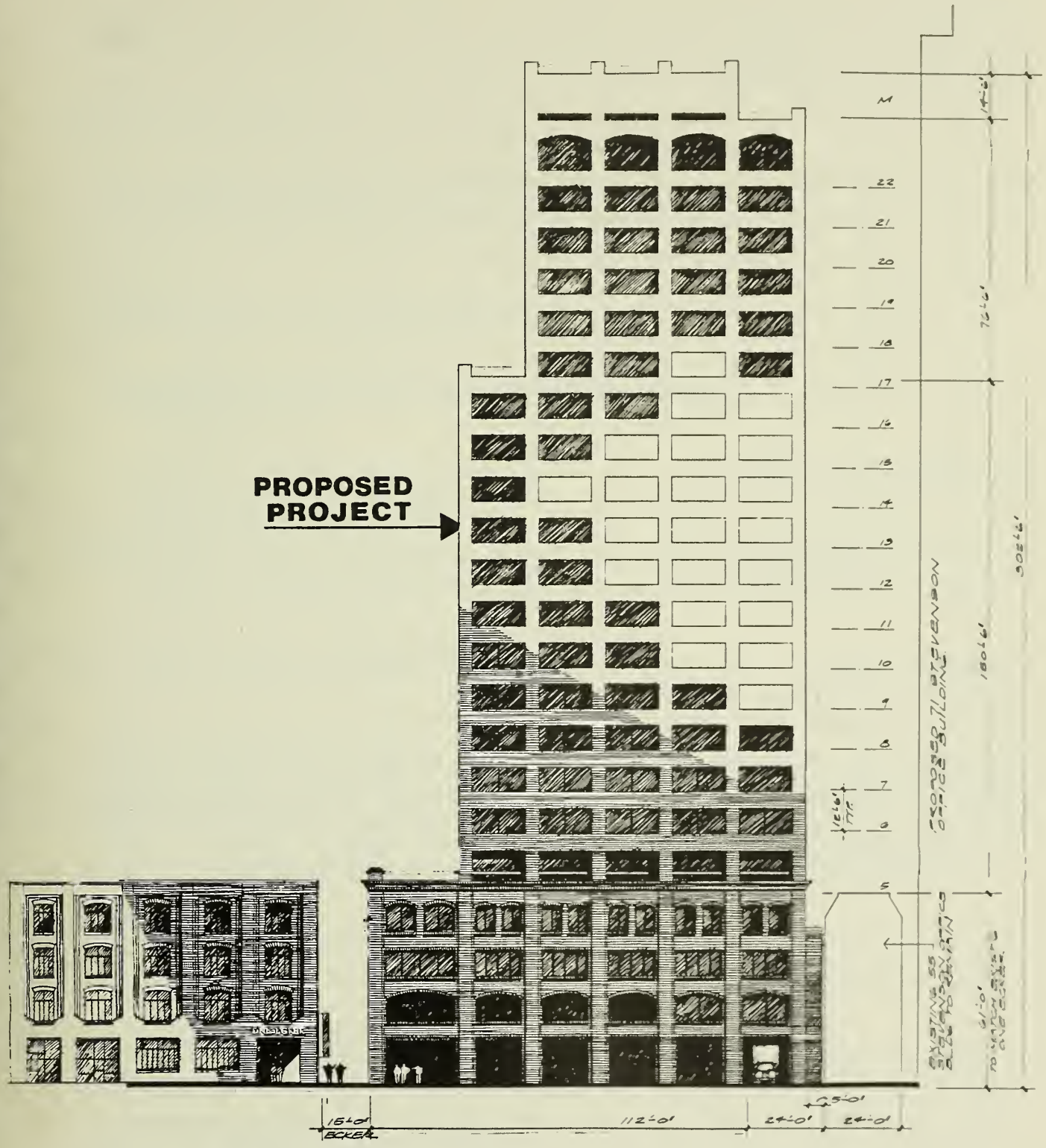


NO SCALE

SOURCE: EIP

SITE LOCATION

A-1



0 20 40 80 FEET

SOURCE: CLIFFORD MOLES ASSOCIATES

STEVENSON STREET ELEVATION

A-2

II. SUMMARY OF POTENTIAL EFFECTS

A. SIGNIFICANT EFFECTS

The 49 Stevenson project is examined in this Initial Study to identify its potential effects on the environment. The proposed project may generate environmental impacts that could be considered significant and these will be analyzed in an environmental impact report. Potential environmental effects from the project include effects on land use; visual quality; population; transportation and circulation; construction noise; cumulative air quality impacts, sun shading and localized impacts on wind patterns; project-generated and cumulative impacts on energy consumption; project-generated and cumulative impacts for fire and emergency response; and cultural/architectural impacts. These issues will be covered further in an environmental impact report (EIR) for the project.

B. INSIGNIFICANT EFFECTS

The proposed 49 Stevenson project would not have significant environmental effects on the areas indicated below. These potential environmental issues require no further study and will not be addressed in the subsequent EIR.

Operational Noise: After completion, the project would not increase noise levels perceptibly in the project vicinity.

Utilities/Public Services: With the exception of fire services, the increased demand for public services and utilities generated by the proposed project would not require additional personnel or equipment and requires no further study. A discussion of project-related and cumulative demands for fire services will be included in the EIR.

Biology: The project would have no effect on plant or animal life as the site is presently covered by buildings.

Hazards: The proposed project would not be affected by hazardous uses or health hazards in the area nor would there be a potential for health hazard. An evacuation and emergency response plan would be developed by the project sponsor as part of the project.

Water: The site is currently covered by buildings with no surface water. Alterations to drainage patterns, therefore, will not be discussed in the subsequent EIR.

Archaeological Resources: Project excavation would occur in previously disturbed soils, therefore, the potential for encountering archaeological resources during construction would be limited. The project sponsor has included a mitigation measure addressing this improbable impact.

Project-generated Air Quality Impacts: Project operation would not violate any ambient air quality standard, expose any sensitive receptors to air pollutants or create any objectionable odors.

III. ENVIRONMENTAL EVALUATION CHECKLIST

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS

Could the project:

		Yes	No	Discussed
1.	Require a variance, special authorization, or change to the City Planning Code or Zoning Map?	___	X	X
*2.	Conflict with the Comprehensive Plan of the City and County of San Francisco?	___	X	X
*3.	Conflict with any other adopted environmental plans and goals of the City or Region?	___	X	X

The proposed project would not require a variance or special authorization but would be subject to Discretionary Review by the City Planning Commission. The project would generally respond to the City's Comprehensive Plan and would not conflict with adopted environmental plans and goals of the City and region. The compatibility of the proposed project with specific goals in the Comprehensive Plan will be discussed in the EIR.

B. ENVIRONMENTAL EFFECTS

1. Land Use. Could the project:

*a.	Disrupt or divide the physical arrangement of an established community?	___	X	X
b.	Have any substantial impact upon the existing character of the vicinity?	X	___	X

* Derived from State Environmental Guidelines, Appendix G, normally significant impacts.

The property is located south of Market Street and within the City's central business district. The project area contains a number of high-rise buildings. and a variety of uses including office, retail, and light commercial. The proposed project, along with other office projects proposed in the immediate vicinity, could alter the character of the vicinity by increasing the density of land uses. These matters will be discussed further in the EIR.

	Yes	No	Discussed
2. Visual Quality. Could the project:			
*a. Have a substantial, demonstrable negative aesthetic effect?	___	X	X
b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?	___	X	X
c. Generate obtrusive light or glare substantially impacting other properties?	___	X	X

All of these issues will be discussed in the EIR.

3. Population. Could the project:			
*a. Induce substantial growth or concentration of population?	X	___	X
*b. Displace a large number of people (involving either housing or employment)?	X	___	X
c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	X	___	X

The proposed project would include demolition of a four-story building with a basement. Offices occupy the top three floors and there is a restaurant on the ground floor. Existing businesses would be relocated to the new structure to the extent possible. The Yank Sing and Eckers Restaurants have agreed to relocate within the proposed project. It is unknown at this time whether the other existing tenants would occupy space within the new structure. The issues relating to employment, growth inducement and housing will be analyzed in the EIR.

	Yes	No	Discussed
4. Transportation/Circulation. Could the project:			
*a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	X	___	X
b. Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?	___	X	X
c. Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	X	___	X
d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	X	___	X

The project would cause an increase in traffic and would add incrementally to the cumulative demand for transit and parking. All of the above matters will be addressed in the EIR.

5. Noise. Could the project:			
*a. Increase substantially the ambient noise levels for adjoining areas?	X	___	X
b. Violate Title 25 Noise Insulation Standards, if applicable?	___	X	X
c. Be substantially impacted by existing noise levels?	___	X	___

The sound levels near the site are typical of those found in downtown San Francisco and are dominated by vehicular traffic. Based upon measurements taken south of the project site at the corner of Jessie and Ecker Streets, immediately east of the site across Ecker Street, and immediately north of the site across Stevenson Street, the day/night average noise level (L_{dn})[1] is between 65 and 70 dBA.[2] The Environmental Protection Element[3] contains guidelines for determining the compatibility of various land uses with different noise environments. For office uses the guidelines recommend no special noise control measures in an exterior noise environment up to a noise level (L_{dn}) of 70 dBA. Since the existing noise levels do not exceed the recommended guideline level for an office building, special noise insulation requirements would not be necessary in the building design, and further analysis is not required in the EIR.

The project does not contain a parking facility, therefore, there would be no audible increase in noise levels associated with project-related traffic. On-site noise generated by project operation would be expected to be minimal; however, construction noise will significantly impact the surrounding area. Noise impacts occurring during the construction period will be further analyzed in the EIR.

Title 25 Noise Insulation Standards are applicable to residential construction. These would not apply to the project since no on-site housing is proposed.

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[1] L_{dn}, the day-night average noise level, is a noise measurement based on human reaction to cumulative noise exposure over a 24-hour period, taking into account the greater annoyance of nighttime noise (noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise).

[2] Charles M. Salter Associates, letter of June 1, 1983.

[3] San Francisco Department of City Planning, Environmental Protection Element, fully adopted by the Planning Commission September 19, 1974.

	Yes	No	Discussed
6. Air Quality/Climate. Could the project:			
*a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	___	X	X
*b. Expose sensitive receptors to substantial pollutant concentrations?	___	X	X
c. Permeate its vicinity with objectionable odors?	___	X	X
d. Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	X	___	X

Construction and operation of the proposed project would not violate any ambient air quality standard, expose any sensitive receptors to air pollutants or create objectionable odors. Construction activities would generate dust emissions from the action of wind over exposed earth surfaces. Such emissions could be suppressed by about 50% by twice daily watering of exposed earth surfaces.

Cumulative air quality impacts, sun shading and localized wind impacts will be discussed in the EIR.

7. Utilities/Public Services. Could the project:	Yes	No	Discussed
*a. Breach published national, state or local standards relating to solid waste or litter control?	___	X	X
*b. Extend a sewer trunk line with capacity to serve new development?	___	X	X
c. Substantially increase demand for schools, recreation or other public facilities?	___	X	X
d. Require major expansion of power, water, or communications facilities?	___	X	X

The proposed project would incorporate more extensive fire protection measures than the existing buildings on-site because of the more stringent fire and building code standards now in effect. However, highrises fronting on narrow streets and alleys present a potential hazard for evacuation should a circumstance arise requiring total evacuation of the buildings in the immediate project area. The Fire Department recommends that exiting be accessible to more than one street. The high pressure water mains on Jessie and Stevenson are old and small. Pressure may not be adequate to serve the area, requiring enlarging the existing mains. The project itself would not require additional personnel or equipment. As development continues, the need for an additional station, personnel and equipment increases.[1] A discussion of project-related and cumulative demands for fire services will be included in the EIR.

The proposed project is within the Southern Police District. The area is patrolled 24 hours a day by radio-dispatched patrol cars. The project would increase population and property on the site, which would increase the potential for crime. Additional personnel or equipment would not be required by the police department as a result of the project. Cumulative growth in the area could increase the demand for police services.[2]

A reduction in enrollment has been experienced in San Francisco public schools. The school district could accommodate any increase in school-aged children generated by the project.[3]

The 49 Stevenson project would not include a plaza. The site is adjacent to the Tishman Building Plaza and in close proximity to landscaped plazas included in other proposed projects.

The project would not generate excessive demand on urban parks or other recreational facilities in the City. The project is not expected to have any direct effect on the maintenance of public facilities.

There would be a net increase in the consumption of energy generated by the proposed office building. The existing electric and gas facilities in the vicinity of the project are adequate to serve the project. Some work, including trenching, may be required on Ecker Street in order to extend new services to the site. PG&E does not anticipate difficulty in providing the required amount of natural gas or electricity to the project.[4] The building would conform to state standards for nonresidential buildings (Title 24 of the California Administrative Code).

The project would result in increased use of communication systems. Existing facilities on site are not adequate to serve the demands of the proposed office building and new facilities would be extended to the site. Pacific Telephone does not anticipate any difficulty in providing service to the site.[5]

The development would result in water consumption at the site of approximately 19,200 gallons per day. There is an eight-inch main on Stevenson Street of adequate size and capacity to serve the site.[6]

The amount of wastewater generated by the project would be about the same as the water consumed. There is a twelve-inch main on Stevenson which has adequate capacity to handle the sanitary flows generated by the project. Below this main lies the approximately seven-by-eight-foot North Point Main which transports wastewater to the North Point Treatment Center. Many sewer lines in the South of Market area are not adequate to meet the 5-year storm design criteria. Once the clean water facilities along The Embarcadero are in operation (the end of 1983), sewer lines will become adequate to meet this criteria.[7]

The proposed office building would generate about 1,700 pounds of solid waste per work day. The Golden Gate Disposal Company would remove solid waste and does not

anticipate problems in meeting the demands generated by the proposed project. The disposal company encourages the use of trash compactors to reduce the indirect traffic impact of transporting San Francisco's solid waste to Mountain View (beginning November 1, 1983, waste will be brought to a site in Altamont, Alameda County).[8]

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[1]Edward J. Phipps, Assistant Chief, Support Services, San Francisco Fire Department, letter communication, April 29, 1983.

[2]Jim Yeo, Planning and Research, San Francisco Police Department, telephone communication, May 17, 1983.

[3]San Francisco Unified School District, Proposal for Leasing and Selling Vacant Property, April 29, 1980, pages 28 and 29.

[4]George G. Pavana, Industrial Power Engineer, Pacific Gas and Electric, letter communication, April 26, 1983.

[5]Leo Ladner, Building Industry Consultant, Pacific Telephone, telephone communication, April 5, 1983.

[6]Cy Wentworth, Water Estimator, San Francisco Water Department, City Distribution Division, telephone communication, May 17, 1983.

[7]Mervyn Francies, Engineering Associate II, Bureau of Sanitary Engineering, telephone communication, May 17, 1983.

[8]Fiore Garbarino, Manager, Golden Gate Disposal Company, telephone communication, May 17, 1983.

8. Biology. Could the project:	Yes	No	Discussed
*a. Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	___	X	X
*b. Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	___	X	X
c. Require removal of substantial numbers of mature, scenic trees?	___	X	X

The project site is totally covered by development. There are no plant or animal habitats on site. This matter does not require further discussion in the EIR.

	Yes	No	Discussed
9. Geology/Topography. Could the project:			
*a. Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?	___	X	X
b. Change substantially the topography or any unique geologic or physical features of the site?	___	X	X

Preliminary geotechnical and foundation investigations are in preparation. Pending completion of this investigation, geologic and topographic conditions will be discussed in the EIR.

10. Water. Could the project:			
*a. Substantially degrade water quality, or contaminate a public water supply?	___	X	X
*b. Substantially degrade or deplete ground water resources, or interfere substantially with ground water recharge?	___	X	X
*c. Cause substantial flooding, erosion or siltation?	___	X	X

There is no surface water at the site. The site is currently impervious, covered by existing buildings. The proposed project would not alter this situation. Runoff would continue to drain into the combined City storm/sewer system. These matters require no further discussion in the EIR.

11. Energy/Natural Resources. Could the project:			
*a. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	___	X	X
b. Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	___	X	X

The project would not encourage wasteful energy-related activities or have a substantial effect on the depletion of a natural resource. Project-generated and cumulative energy consumption impacts will be discussed in the EIR.

	Yes	No	Discussed
12. Hazards. Could the project:			
*a. Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	___	X	X
*b. Interfere with emergency response plans or emergency evacuation plans?	___	X	X
c. Create a potentially substantial fire hazard?	___	X	X

The project would not create a potential public health hazard. An evacuation and emergency response plan would be developed as part of the proposed project (see D. Mitigation Measures, page 14). The project's emergency plan would be coordinated with the City's emergency planning activities. This issue will be discussed in the EIR.

New high-rise structures in San Francisco have been required to conform with the Life Safety provisions of the San Francisco Building Code since 1975, therefore, it is not anticipated that the project would create a substantial fire hazard. However, a discussion of project-related and cumulative demands for fire services will be included in the EIR.

13. Cultural. Could the project:			
*a. Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	X	___	X
*b. Conflict with established recreational, educational, religious or scientific uses of the area?	___	X	___
c. Conflict with preservation of any buildings of City landmark quality?	___	X	X

The excavation required for the upgrading of foundations would occur in existing disturbed soils and the potential for encountering archaeological resources during construction would be limited. However, the project sponsor has included a mitigation measure as part of the project which addresses this improbable impact (see D. Mitigation Measures, page 14).

The structure located at 49 Stevenson is rated "C"[1] by the Foundation for San Francisco's Architectural Heritage (Heritage) and not rated in the architectural survey done by the Department of City Planning (DCP). The structure located at 53 Stevenson is rated "C" by Heritage and is rated "I"[2] in the DCP survey. The structure at 55 Stevenson was rated "C" by Heritage and not rated by DCP. Issues associated with cultural/architectural impacts will be discussd in the EIR.

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[1]A "C" rating indicates contextual importance and refers to buildings that provide a setting for more important buildings and add visual richness and character to the downtown area.

[2]Those buildings considered to have architectural value were rated by DCP as to the degree of architgectural value from a low of "0" to a high of "5". Factors considered included architectural significane, urban design, context and overall environmental significance.

C. OTHER	Yes	No	Discussed
Require approval of permits from City Departments other than DCP or BBI, or from Regional, State or Federal Agencies?	___	X	___

D. MITIGATION MEASURES	Yes	No	N/A	Discussed
1. If any significant effects have been identified, are there ways to mitigate them?	X	___	___	X
2. Are all mitigation measures identified above included in the project?	X	___	___	X

MITIGATION MEASURES INCLUDED AS PART OF THE PROJECT:

1. An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to ensure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project's plan would be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance of final building permits by the Department of Public Works.

2. Should evidence of cultural or historic artifacts of significance be found during project excavation, the Environmental Reviw Officer and the President of the Landmarks Preservation Advisory Board would be notified. The project sponsor would select an archaeologist or other expert to help the Office of Environmental Review determine the significance of the find and whether feasible measures, including appropriate security measures, could be implemented to preserve or recover such artifacts. The Environmental Review Officer would then recommend specific mitigation measures, if necessary, and recommendations would be sent to the State Office of Historic Preservation. Excavation or construction which might damage the discovered cultural resources would be suspended for a maximum of four weeks to permit inspection, recommendation and retrieval, if appropriate.

Additional mitigation measures for the project will be discussed in the EIR if need is identified.

E. ALTERNATIVES

	Yes	No	Discussed
1. Were alternatives considered?	X	___	X

Several alternatives to the proposed project were under consideration and will be discussed in the EIR.

F. MANDATORY FINDINGS OF SIGNIFICANCE

*1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	___	X	___
*2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	___	X	___
*3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	X	___	X

	Yes	No	Discussed
*4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?	___	X	___
*5. Is there a serious public controversy concerning the possible environmental effect of the project?	___	X	___

G. ON THE BASIS OF THIS INITIAL STUDY:

___ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

___ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers __, in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

X I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Alec S. Bash
Environmental
Review Officer

for

Dean L. Macris
Director of Planning

Date: June 20, 1983

APPENDIX B

TRANSPORTATION

APPENDIX B

TRANSPORTATION

TABLE B-1

PEDESTRIAN FLOW REGIMES

Flow Regime	Walking Speed Choice	Conflicts	Average Speed Rate (P/F/M)[1]
Open	Free Selection	None	0.5
Unimpeded	Some Selection	Minor	0.5 - 2.0
Impeded	Some Selection	High Indirect Interaction	2.0 - 6.0
Constrained	Some Restriction	Multiple	6.0 - 10.0
Crowded	Restricted	High Probability	10.0 - 14.0
Congested	All Reduced	Frequent	14.0 - 16.0
Jammed	Shuffle Only	Unavoidable	16.0+

[1] P/F/M - Pedestrians per foot of sidewalk width per minute.

Source: Boris Pushkarev and Jeffrey M. Zupan, Urban Space for Pedestrians, Massachusetts, MIT Press, 1975.

TABLE B-2

LEVELS OF SERVICE DEFINITIONS
FOR SIGNALIZED INTERSECTIONS

Level of Service A

Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.

Level of Service B

Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.

Level of Service C

Level of Service C describes a condition where the approach to an intersection is often fully utilized and backups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally must have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.

Level of Service D

Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive backups. The traffic operation can generally be described as fair.

Level of Service E

Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting upstream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.

Level of Service F

Level of Service F represents a jammed condition. Backups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.

Source: City and County of San Francisco, Department of Public Works, Traffic Engineering Division.

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made utilized the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in "Interim Materials on Highway Capacity," Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table D-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio was calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE B-3

PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

	Volume/Capacity (v/c) Ratio*
Level of Service A	0.00-0.50
Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with less than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	
Level of Service B	
Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51-0.75
Level of Service C	
Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76-1.00
Level of Service D	
Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence as the restricted freedom of movemen; for passengers requires longer loading times.	1.01-1.25
Level of Service E	
Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur which can rapidly cause operations to deteriorate.	1.26-1.50
Level of Service F	
Level of Service F describes crush loadings. Passenger comfort and maneuverability is extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51-1.60

Source: Interim Materials on Highway Capacity, Transportation Research Circular 212, pages 73-113, Transportation Research Board, 1980.

TABLE B-4

TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

	Volume/Capacity (v/c) Ratio*
Level of Service A Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
Level of Service B Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
Level of Service C Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
Level of Service D Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
Level of Service E Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
Level of Service F Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

*Capacity is defined as level of Service E.

Source: Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.

PHOTOGRAPHS OF PEAK MUNI LOADING CONDITIONS

SOURCE: ESA

M OCEAN VIEW - CIVIC CENTER STATION
Wednesday, September 9, 1981 - 8:20 A.M. - Inbound

L TARAVAL - VAN NESS STATION
Wednesday,September 16, 1981 - 4:50 P.M. - Outbound

14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE.
Tuesday, September 29, 1981 - 5:45 P.M. - Outbound

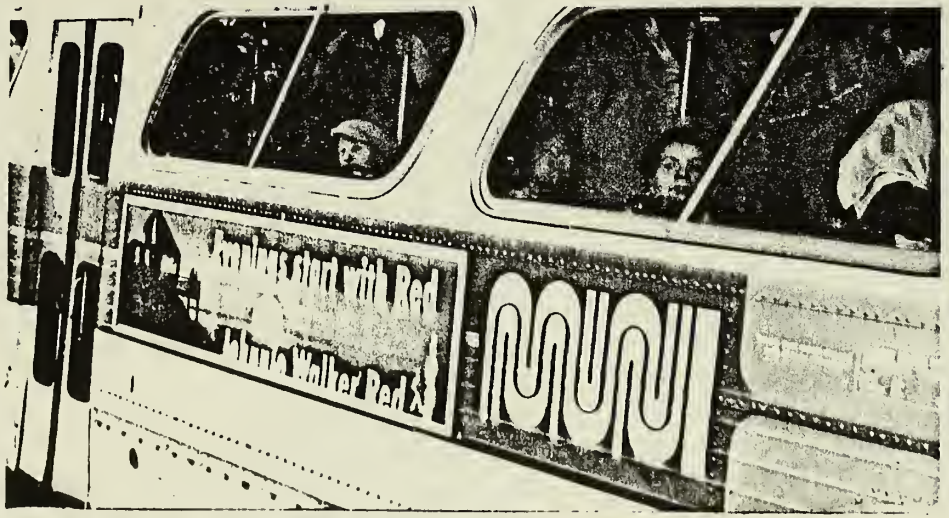
N JUDAH - DUBOCE AND CHURCH
Wednesday, June 8, 1983 - 8:00 A.M. Inbound

PHOTOGRAPHS OF PEAK MUNI LOADING CONDITIONS

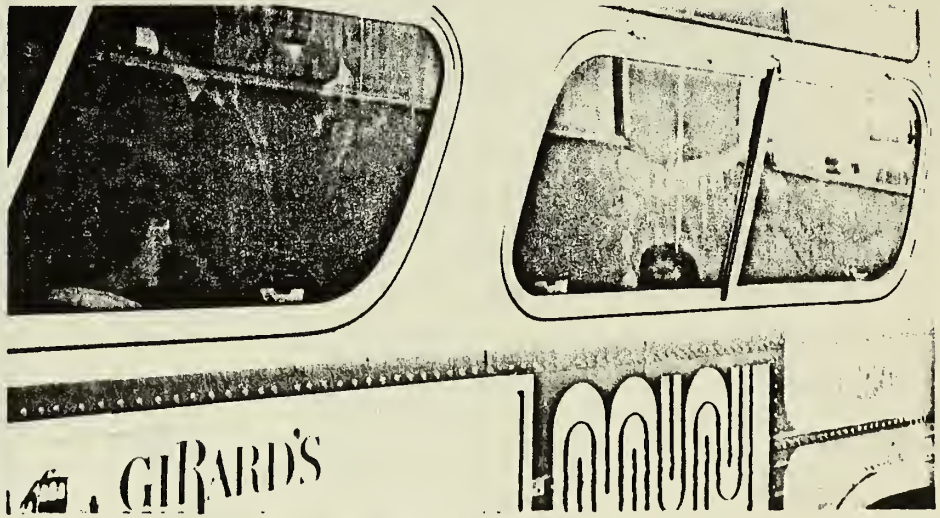
SOURCE: ESA

K INGLESIDE - VAN NESS STATION
Wednesday, September 9, 1981 - 8:00 A.M. - Inbound

N JUDAH- VAN NESS STATION
Wednesday, September 16, 1981 - 5:00 P.M. Outbound



38 GEARY - VAN NESS AVE. AND O'FARRELL ST.
Wednesday, October 21, 1981 - 9:00 A.M. - Inbound



38 GEARY - VAN NESS AVE. AND GEARY BLVD.
Wednesday, October 21, 1981 - 4:20 P.M. - Outbound

PHOTOGRAPHS OF PEAK MUNI LOADING CONDITIONS

SOURCE: ESA

J CHURCH - ST. AND DUBOCE AVE.

Tuesday, September 29, 1981 - 9:00 A.M. - Outbound

30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.

Wednesday, October 7, 1981 - 8:00 - Inbound

APPENDIX C

MICROCLIMATE IMPACT STUDY

49 STEVENSON STREET PROJECT

I. SUMMARY

Wind tunnel tests were conducted for the three most common wind directions in San Francisco: northwest, west and southwest. Wind tunnel information was combined with wind records to predict average windspeeds at locations near the project site. The average windspeeds were compared to criteria for pedestrian discomfort and pedestrian hazard.

Tests were conducted for both the proposed project and Alternative 1. Tests were also conducted with different combinations of two other proposed buildings within the block: the 71 Stevenson and 562 Mission (Lincoln Plaza) buildings.

The project was found to increase windspeeds by 10% to 25% for northwest winds near the Ecker/Stevenson intersection and along Ecker Street adjacent to the site. West winds would be unchanged by the project because the site is sheltered from this direction by the Chevron building. For southwest winds, the project would accelerate winds 30% to 50% at certain locations along Stevenson Street. In no case would the pedestrian discomfort criterion be exceeded; however, Alternative 1 would have reports similar to the proposed project. Wind increases along Stevenson Street would be greater than for the proposed project, amounting to up to 40% at some locations.

The addition of either or both the 71 Stevenson and Lincoln Plaza projects would not alter windspeeds near the project site under northwest or west wind conditions. For southwest winds, however, these projects would increase windspeeds in the project vicinity. The 71 Stevenson proposal would increase southwest winds adjacent to the 71 Stevenson site along Stevenson Street. At the same time, winds would be reduced to below present levels adjacent to the 49 Stevenson site because the project site would be sheltered from southwest winds by the 71 Stevenson Project.

The Lincoln Plaza proposal would increase southwest winds above the comfort criterion along Jessie Street from Anthony Place to Ecker Street.

Together the 71 Stevenson and Lincoln Plaza proposals would increase southwest winds to above the comfort criterion along portions of Stevenson Street and along most of Jessie Street between Anthony Place and Ecker Street.

II. INTRODUCTION

Architects, engineers, and city planners designing urban structures are limited by the lack of information on wind effects due to structures, such as pedestrian discomfort and wind-caused mechanical problems with doors, windows, and ventilating systems. Once a structure is built, remedial measures (if they exist at all) usually are expensive.

It is virtually impossible to anticipate, by analysis or intuition, the winds that will be caused by a structure, as they are determined by complex interactions of forces. Fortunately it is possible to predict the wind patterns and pressures around structures by testing scale models in a wind tunnel which can simulate natural winds near the ground. This allows the designer to foresee possible environmental and mechanical problems and alleviate them before the building is erected.

Data from wind tunnel tests can be combined with climatological data to analyze the effect of a proposed structure on pedestrians in terms of human comfort. The frequency distribution of wind strengths at pedestrian level, combined with temperature data and shadow patterns of the proposed structure and its surroundings, can be used to forecast comfort at pedestrian levels.

III. BUILDING AND SITE DESCRIPTION

The project site is the northeast corner of the block bounded by Stevenson, Ecker, Jessie and Anthony Streets. The project area is at the south edge of the Market Street corridor. The site is currently occupied by one- and four-story buildings.

The proposed project would be a 23-story highrise. At the fifth and seventeenth levels, the building would be set back from Ecker Street. The exterior walls at the ground floor

would be set back on both the Ecker and Stevenson Street frontages, forming a covered pedestrian walkway.

An alternative design was also tested. This alternative was a 20-story building incorporating small setbacks along the Ecker and Stevenson street frontages at the fifth, eleventh and eighteenth levels. The exterior walls at the ground levels would be set back from the Ecker/Stevenson intersection, forming an covered entry way.

Two other projects have been proposed within the immediate area of the site, and were included in the wind tunnel tests. The 71 Stevenson Building would be located directly southwest of the site within the same block. The proposed Lincoln Plaza project would be located south of the project site, directly across Jessie Street from the 71 Stevenson site (see Figure C-1, page A-32).

IV. MODEL AND WIND TUNNEL FACILITIES

a. Model

A scale model of the proposed project and the structures surrounding the area for a distance of several blocks was constructed of polystyrene and urethene foams at a scale of 1 inch equals 30 feet. Building configurations and heights were obtained from the Sanborn maps and from site visits. Plans for the 71 Stevenson and Lincoln Plaza projects were obtained from the project architects.

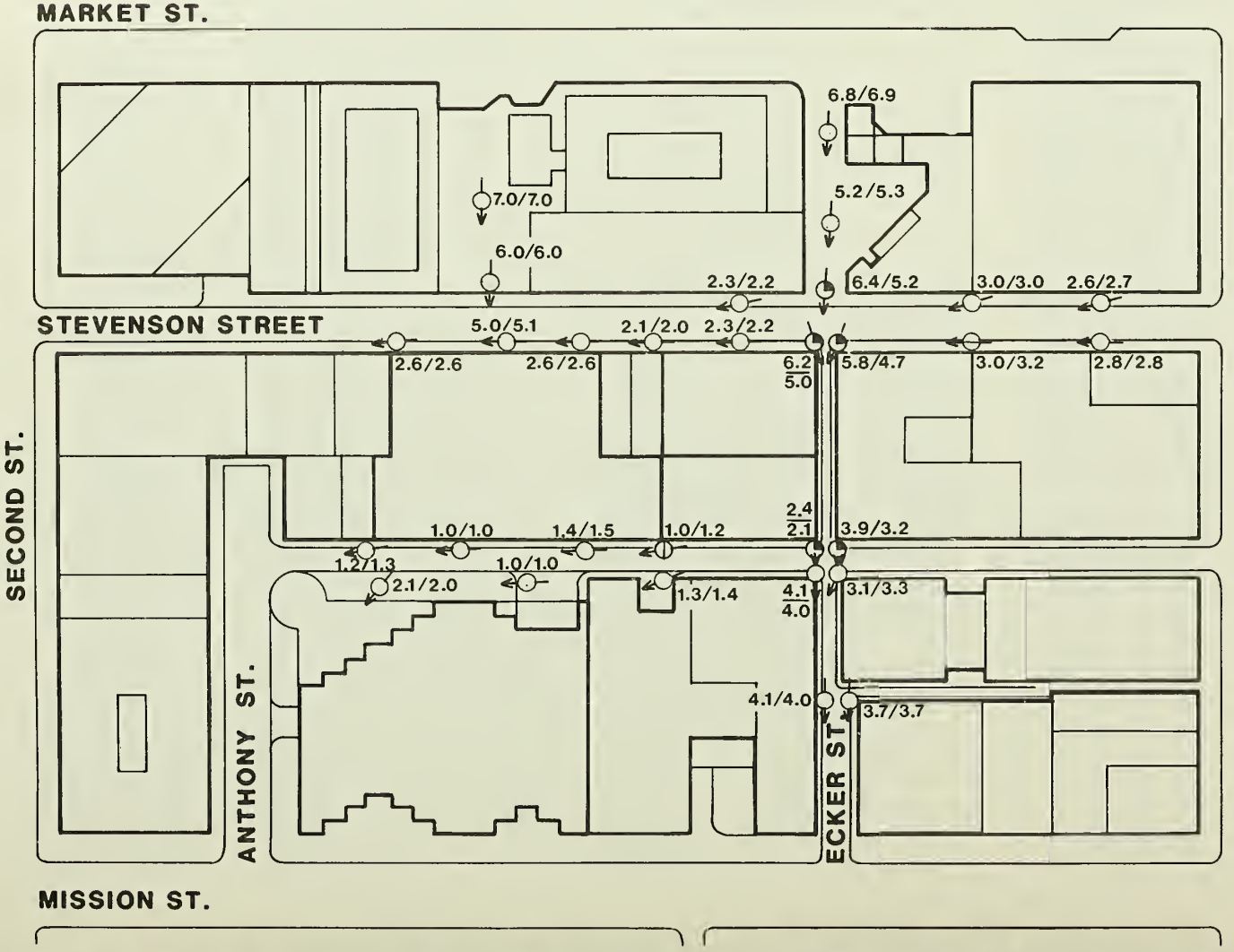
b. Wind Tunnel Facilities

The Environmental Impact Planning Corporation boundary layer wind tunnel was designed specifically for testing architectural models. The working section is 7 feet wide, 43 feet long, and 5 feet high. Wind velocities in the tunnel can be varied from 3.5 mph to 13 mph. The flow characteristics around sharp-edged objects, such as architectural models, are constant over the entire speed range. Low speeds are used for tracer smoke, high speeds for windspeed measurements.

Simulation of the characteristics of natural wind is facilitated by an arrangement of turbulence generators and roughness upwind of the test section. These allow adjustments in wind characteristics to provide for different scale models and varying terrain upwind of the project site.

NORTHWEST WINDS: PROJECT

C-1



SOURCE: DON BALLANTI

NOT TO SCALE

CHANGE IN WINDSPEED RATION NOT MEASURABLE

CHANGE OF LESS THAN 10 %

REDUCTION OF GREATER THAN 10 %

INCREASE OF 10-24 %

INCREASE OF 25-49 %

INCREASE OF 50-99 %

increase of over 100 %

AREA EXCEEDING COMFORT CRITERION

WIND DIRECTION INDICATOR

WINDSPEED

WITH PROJECT → 3.9/3.0

W/O PROJECT

WINDSPEEDS ARE MEASURED WIND TUNNEL DATA BASED ON A REFERENCE SPEED. WIND AT BAY AREA QUALITY MANAGMENT DISTRICT'S OFFICES AT 939 ELLIS ST. IS USED AS THE REFERENCE. A PLOTTED VALUE OF 5.0 INDICATES AVERAGE WIND SPEED AT THAT POINT IS 5.0 MPH.

Measurements of windspeed around the model are made with a hotwire anemometer, a device that relates the cooling effect of the wind on a heated wire to the actual windspeed. The flow above the city is measured by a Pitot tube connected to a micromanometer. The Pitot tube and micromanometer measure directly the pressure difference between moving and still air. This pressure difference is then related to the actual windspeed. Flow visualization is achieved by use of floodlit smoke.

V. TESTING METHODOLOGY

a. Simulation of Flow

The most important factors in ensuring similarity between flow around a model in a wind tunnel and flow around the actual building are the structure of the approach flow and the geometric similarity between the model and the prototype. A theoretical discussion of the exact criteria for similarity is not included in this paper, but may be found elsewhere (Cermak, 1966, or Cermak and Arya, 1970).

The variation of windspeed with height (wind profile) was adjusted for the scale of the model and the type of terrain upwind of the site. The profiles used were those generally accepted as adequately describing the flow over that type of terrain (Lloyd, 1967).

b. Testing Procedure

The windflow characteristics of the site in its current state were investigated to ascertain the present wind environment. Windspeeds and wind directions at specified points throughout the site were measured and recorded. Wind direction was measured by releasing smoke at each point and recording the direction in which the smoke traveled. Windspeed measurements were made at the same points, at a scale height of 5 feet above the ground. A hotwire anemometer probe is required to make these measurements within a fraction of an inch of the model surfaces. The probe is repeatedly calibrated against the absolute reading of a Pitot tube and micromanometer. Velocity readings close to the model are generally accurate to within 10% of the true velocity.

Measurements with the project are made by keeping the probe in place while replacing the existing buildings with each proposal under consideration.

Before and after each test run, a calibration measurement was made above the model. The purpose of these measurements was to relate the wind tunnel measurements to actual wind records from the Bay Area Air Quality Management District's wind instrumentation located west of the site at 939 Ellis Street.

c. Data Analysis

The results of wind tunnel tests are measured windspeeds at selected locations on the scale model. To make this data applicable to the real world and comparable to data from other tunnels or other tests at different scales, it must be expressed in terms of a calibration speed. This calibration speed is normally taken as the free-stream velocity above the model (above the "boundary layer" formed by surface friction).

The calibration speed can be used within an assumed wind profile (variation with height) to relate measured wind tunnel data with wind data at a nearby meteorological station. The BAAMQD office, located about 0.5 miles northwest of the site, is an ideal choice. Wind-tunnel measurements have therefore been expressed as the mean windspeed expected at the point of interest, based on weather records from 939 Ellis Street.

VI. IMPACT CRITERIA

The primary impact of wind in the San Francisco area is human discomfort, and in extreme cases, human safety. Theoretical and empirical attempts to determine human comfort criteria in a cool climate such as San Francisco have not yielded a simple criterion. Obviously, variables such as temperature, clothing, levels of activity and insolation have to be considered. In the absence of a usable thermal comfort criterion, a criterion based on physical effects is often used. Physical effects that cause pedestrian discomfort are wind-blown dust, the blowing of hair and flapping of clothes, and interference with contact lenses. These physical effects all begin to occur at a windspeed of 11 mph.

Windspeeds of 35 mph can conceivably unbalance an elderly pedestrian, and represent a hazardous condition. Winds this strong are seldom measured in San Francisco, but highrise buildings can accelerate winds in localized areas well above the ambient windspeed.

In this report, measured data have been expressed as the mean windspeed. Thus, a plotted value of 5.0 means that the mean wind at that location is expected to be 5 mph when the wind is blowing from the direction in question.

Wind direction and speed frequencies have been analyzed by the BAAQMD for 1971-1978 data. The District considers San Francisco to have three climatic regimes: summer (May through September), winter (November through March) and a transition regime (April and October). In terms of wind-caused comfort problems, the 5-month "summer" regime is of greatest importance. The mean windspeed in the "summer" regime is 8.0 mph, in the "winter" regime it is 4.8 mph and during "transition" months it is 6.0 mph. It is during the summer that the cool temperatures, wind and clouds that San Francisco's climate is noted for are most frequent. For this reason, the statistical wind data for the 5-month "summer" regime is used to define criteria.

Summer afternoons are the windiest times in San Francisco, so wind statistics for 4 p.m. in summer have been used to develop a comfort criterion. Analysis of average by hour of day shows that the average windspeed in San Francisco varies little from noon to 6 p.m. Thus, criteria based on a 4 p.m. wind statistic should be valid for the entire afternoon.

A mean windspeed of 11 mph has been selected as the comfort criterion. A criterion for pedestrian hazard is not as straightforward. The extreme wind conditions that would result in 35 mph winds are infrequent. A statistical criterion of a frequency of 35 mph winds less than 5% of the time was selected. Because the distribution of windspeed varies wind direction, the mean windspeed corresponding to a 5% frequency of winds greater than 35 mph is different for each wind direction. The hazard criteria are shown below.

Wind Direction	Hazard Criterion
Northwest	24.2 mph
West	26.2 mph
Southwest	26.9 mph

In summary, the hazard criteria above define the mean windspeed that, if exceeded, would result in winds greater than 35 mph on more than 5% of the summer afternoons.

VII. TEST RESULTS AND DISCUSSION

Tests were conducted for northwest, west and southwest winds. Winds come from these directions 97% of the time in San Francisco during the summer, and tend to be the strongest.

Wind tunnel results are shown in Figures C-1 through C-6. Three types of data are shown. The circles indicate measurement locations. Wind direction is indicated by a "vane." The predicted mean windspeed expressed in miles per hour is plotted. The degree of change in windspeed ratio caused by the project is symbolized within the circle. Shaded areas show where the comfort or hazard criteria are exceeded.

In considering the wind tunnel results, the frequency of each wind direction is important. West winds occur about 73% of the time during the 5-month "summer" season, or about 110 days. Southwest winds occur about 13.5% of the time or 20 days of the 150-day summer. Northwest winds occur about 10.5% of the time or 16 days in the 150-day summer.

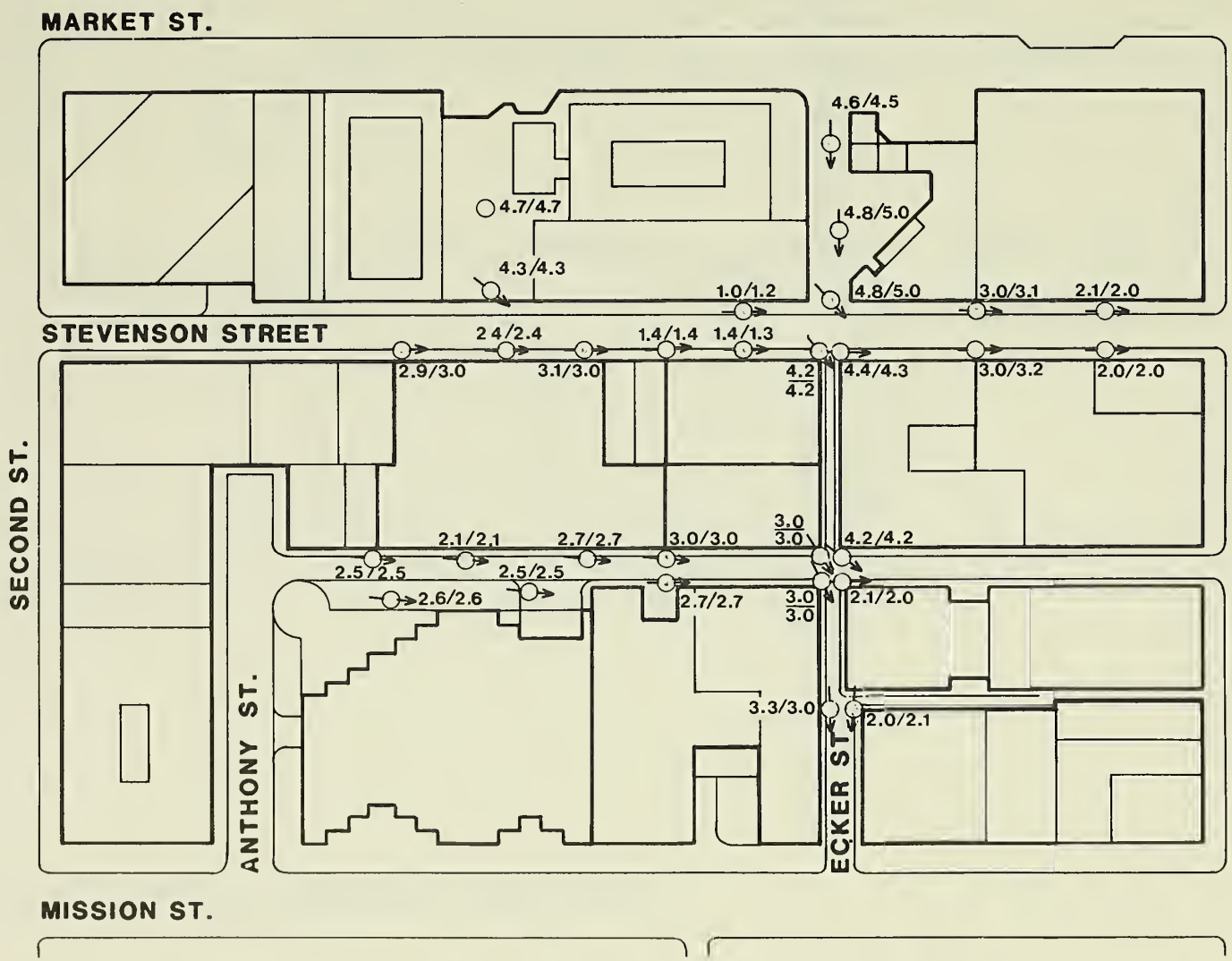
a. Proposed Project

Wind tunnel results for the proposed project alone are shown in Figures C-1, 2 and 3. Wind increases of 10% to 25% are predicted for the northwest wind direction near the Ecker/Stevenson Street intersection and along Ecker Street adjacent the site. For west winds (Figure 2) windspeeds would be unchanged by the project due to the sheltering effect of the Chevron Building. For southwest winds (Figure C-3), the project would increase winds 30% to 50% at certain location along Stevenson Street. The pedestrian ~~dis~~comfort criterion of 11 mph would not be exceeded.

b. Alternative Project

The impacts of the Alternative project are shown in Figures C-4, 5 and 6. This alternative would have impacts similar to those of the proposed project, although wind increases along Stevenson Street under northwest wind conditions would reach 40% compared to 25% for the proposed project (see Figure C-4).

WEST WINDS: PROJECT



SOURCE: DON BALLANTI

NOT TO SCALE

CHANGE IN WINDSPEED RATION NOT MEASURABLE

CHANGE OF LESS THAN 10 %

REDUCTION OF GREATER THAN 10 %

INCREASE OF 10-24 %

INCREASE OF 25-49 %

INCREASE OF 50-99 %

increase of over 100 %

AREA EXCEEDING COMFORT CRITERION

WIND DIRECTION INDICATOR

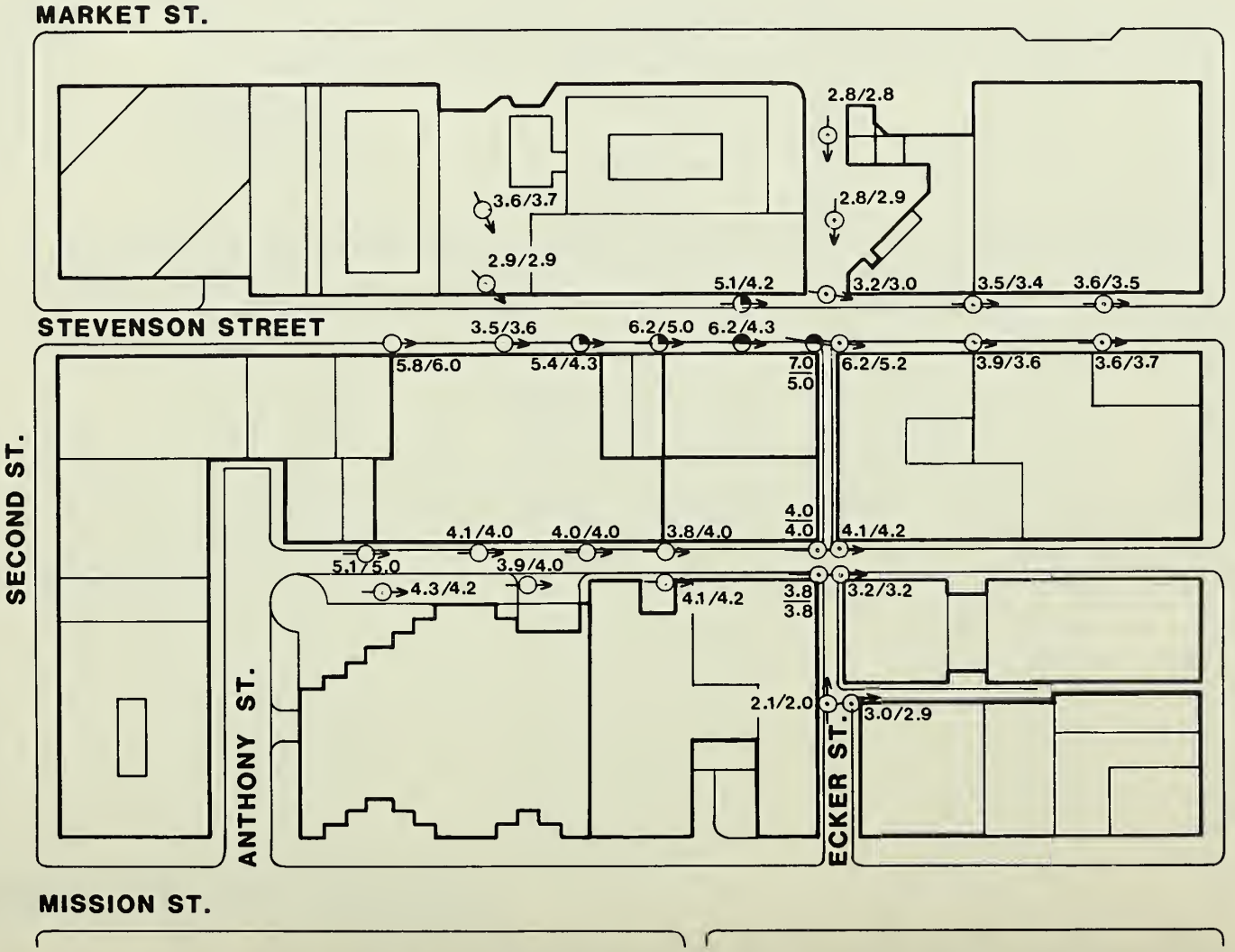
WINDSPEED

WITH PROJECT → 3.9/3.0

W/O PROJECT

WINDSPEEDS ARE MEASURED WIND TUNNEL DATA BASED ON A REFERENCE SPEED. WIND AT BAY AREA QUALITY MANAGMENT DISTRICT'S OFFICES AT 939 ELLIS ST. IS USED AS THE REFERENCE. A PLOTTED VALUE OF 5.0 INDICATES AVERAGE WIND SPEED AT THAT POINT IS 5.0 MPH.

SOUTHWEST WINDS: PROJECT



SOURCE: DON BALLANTI

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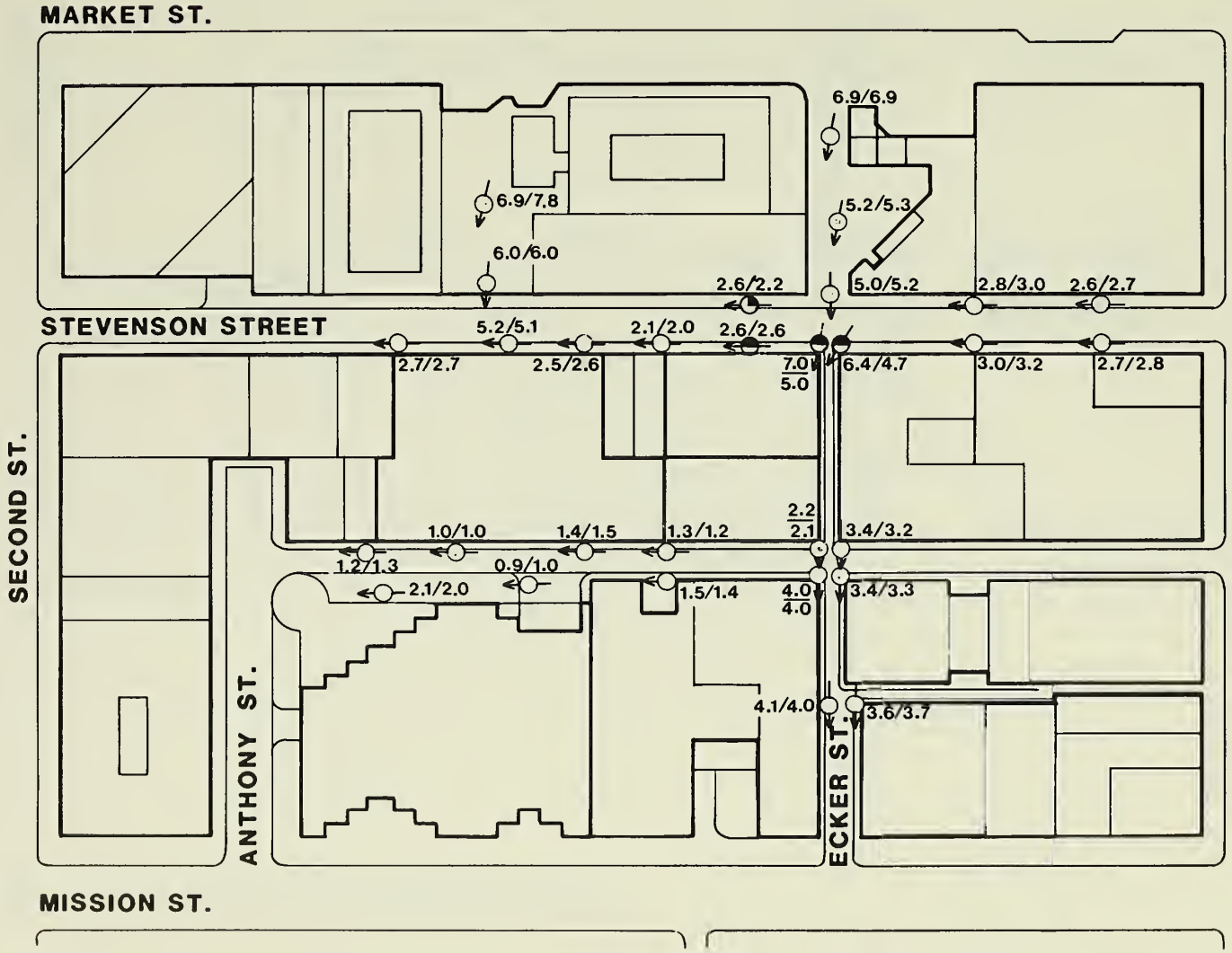
NORTHWEST WINDS: ALTERNATIVE

C-4



SOURCE: DON BALLANTI

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WIND DIRECTION INDICATOR

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WITH PROJECT 3.9/3.0

W/O PROJECT

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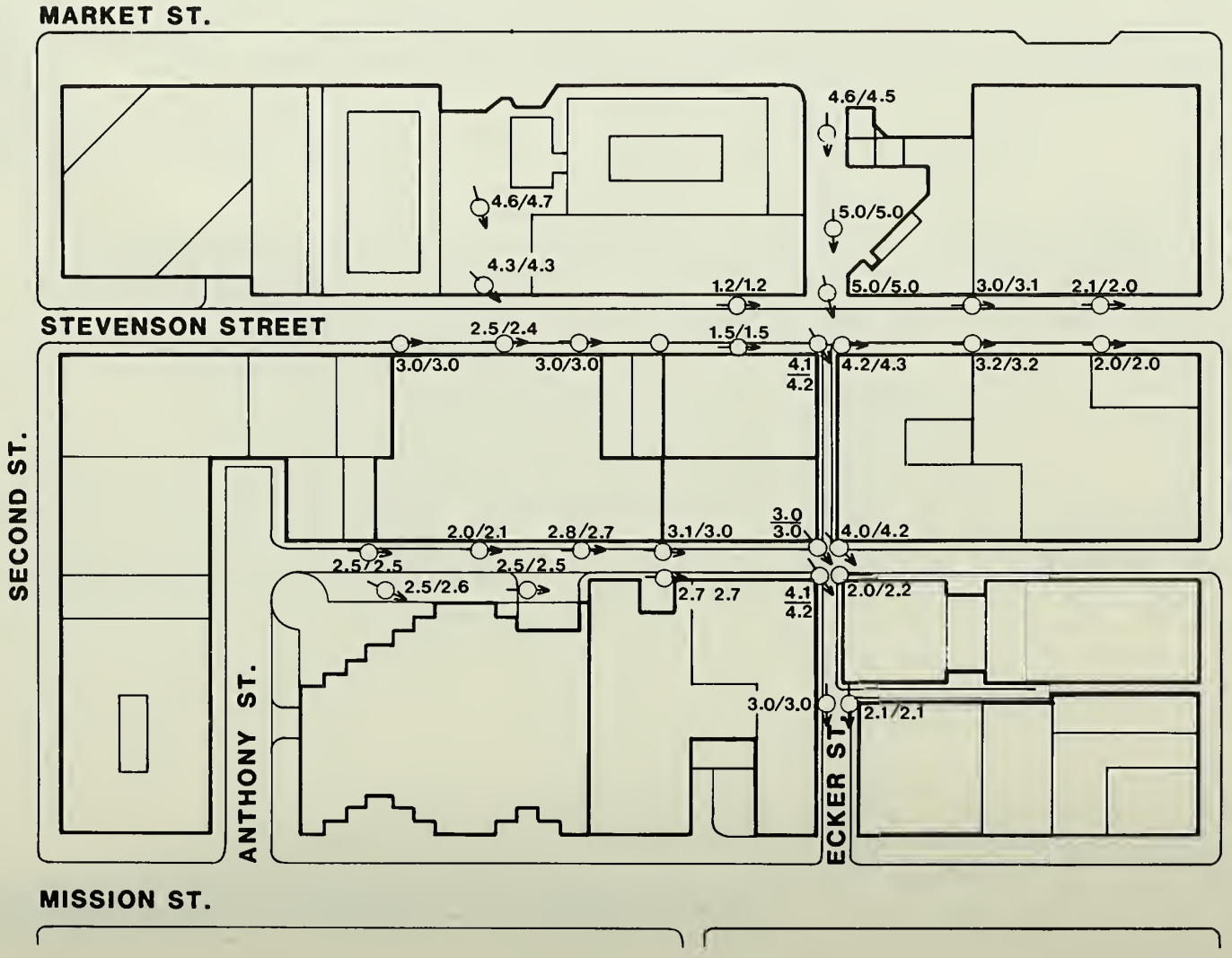
WEST WINDS: ALTERNATIVE



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WIND DIRECTION INDICATOR

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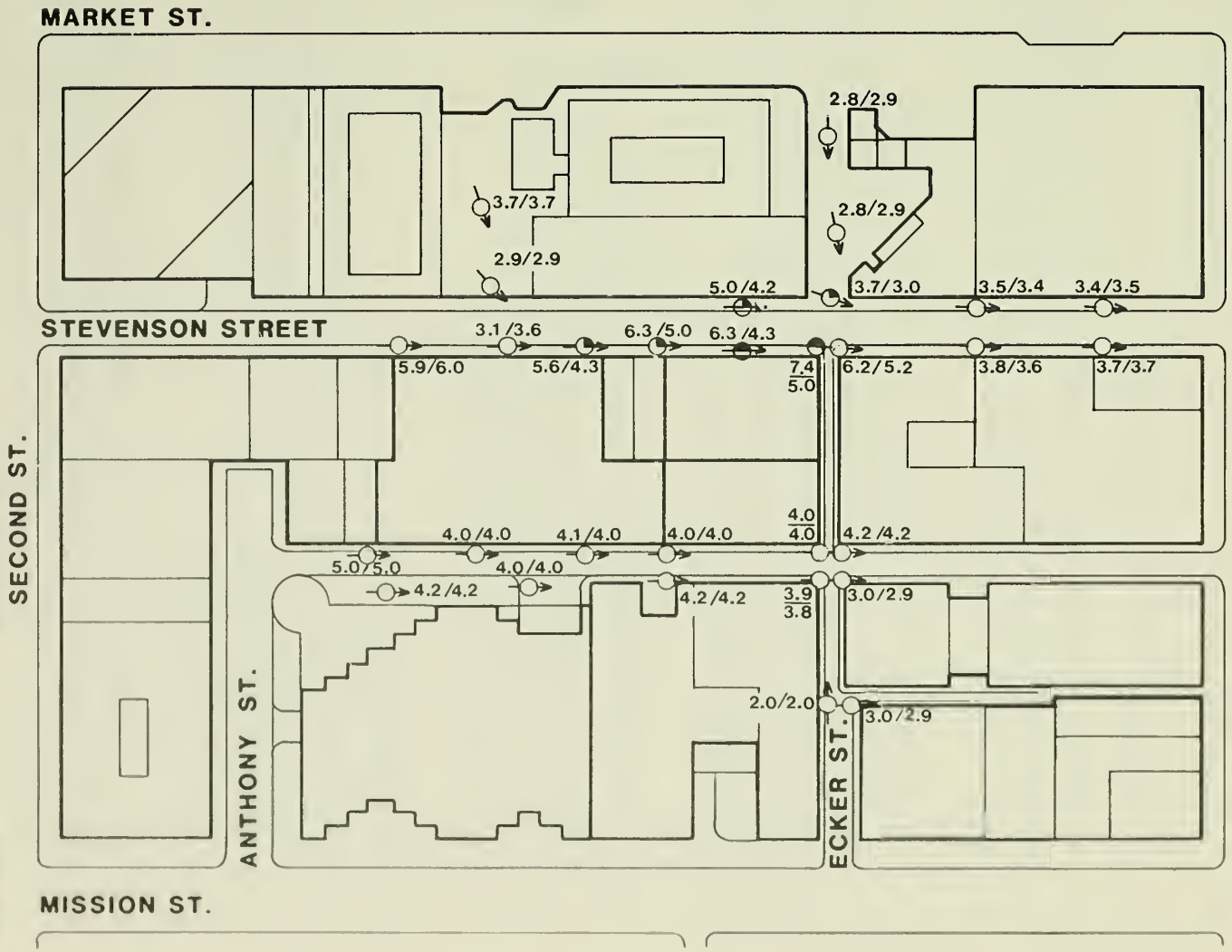
SOUTHWEST WINDS: ALTERNATIVE



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c. Proposed Project and 71 Stevenson Project

The 71 Stevenson Street project would increase winds along both Stevenson Street and Jessie Street for northwest and west winds (Figures C-7 and C-8), but winds would not exceed the pedestrian comfort criterion. The comfort criterion would be exceeded by southwest winds along Jessie Street adjacent the 71 Stevenson site (Figure C-9). The 71 Stevenson Street project would reduce winds adjacent to the 49 Stevenson Site to levels equal to or less than existing levels by sheltering the 49 Stevenson building (see Figure C-9).

d. Proposed Project and Lincoln Plaza

The addition of the Lincoln Plaza Project would have little effect on winds except for the southwest wind direction (Figure C-12) winds would more than double along Jessie Street, exceeding the 11 mph comfort criterion near mid-block.

e. Proposed Project, 71 Stevenson Project and Lincoln Plaza

The impact of cumulative development in the project area is shown in Figures C-13, 14 and 15. The 71 Stevenson and Lincoln Plaza projects would increase southwest winds to above the comfort criterion along portions of Stevenson Street and along most of Jessie Street between Anthony Place and Ecker Street.

f. Alternative Project, 71 Stevenson Project and Lincoln Plaza

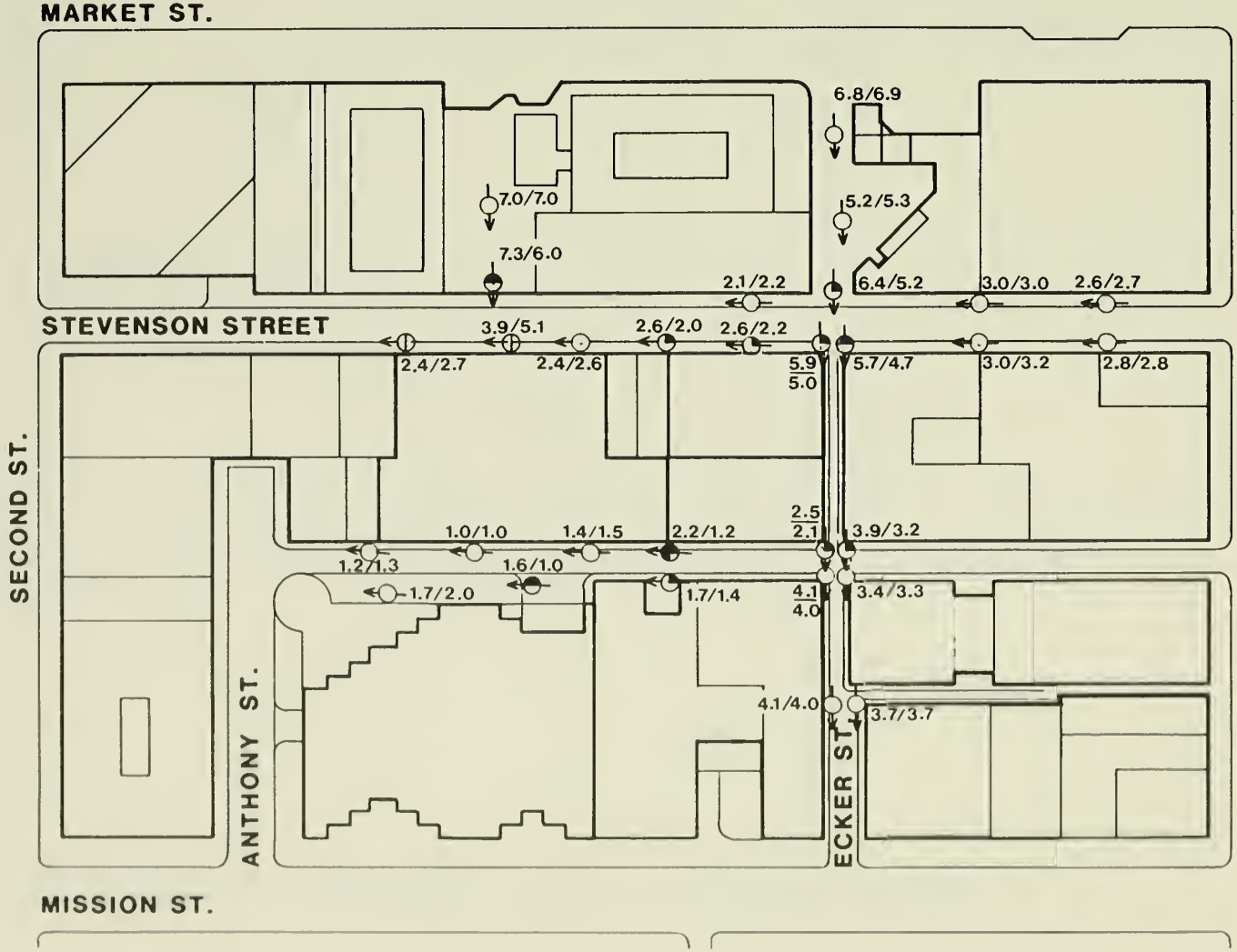
The impact the alternative project and cumulative development is shown in Figures C-16, 17 and 18. The impact would be similar to that shown in Figures C-13, 14 and 15 for the proposed project and cumulative development.

VIII. MITIGATION

Exceedances of the comfort criterion for southwest winds are predicted with the cumulative construction of the 49 Stevenson Project and either or both the 71 Stevenson and Lincoln Plaza buildings. Changes to the 49 Stevenson design would not be effective in mitigating these impacts.

The current project design contains design characteristics that reduce wind impact and improve pedestrian comfort. The use of multiple large set backs from the Ecker Street

NORTHWEST WINDS: PROJECT AND 71 STEVENSON



SOURCE: DON BALLANTI

NOT TO SCALE

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AREA EXCEEDING COMFORT CRITERION

WIND DIRECTION INDICATOR

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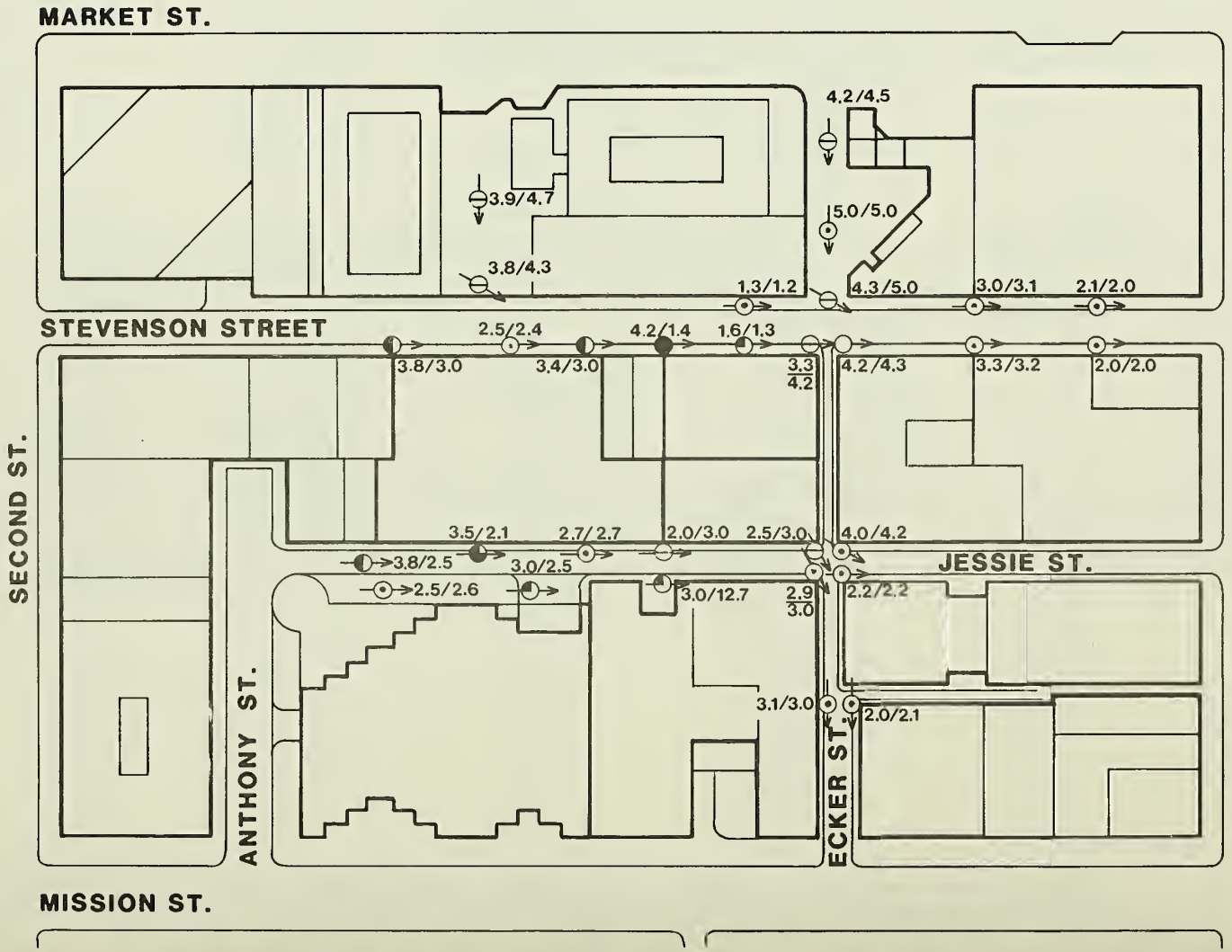
WEST WINDS: PROJECT AND 71 STEVENSON



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AREA EXCEEDING COMFORT CRITERION

WIND DIRECTION INDICATOR

WINDSPEED

WITH PROJECT →3.9/3.0

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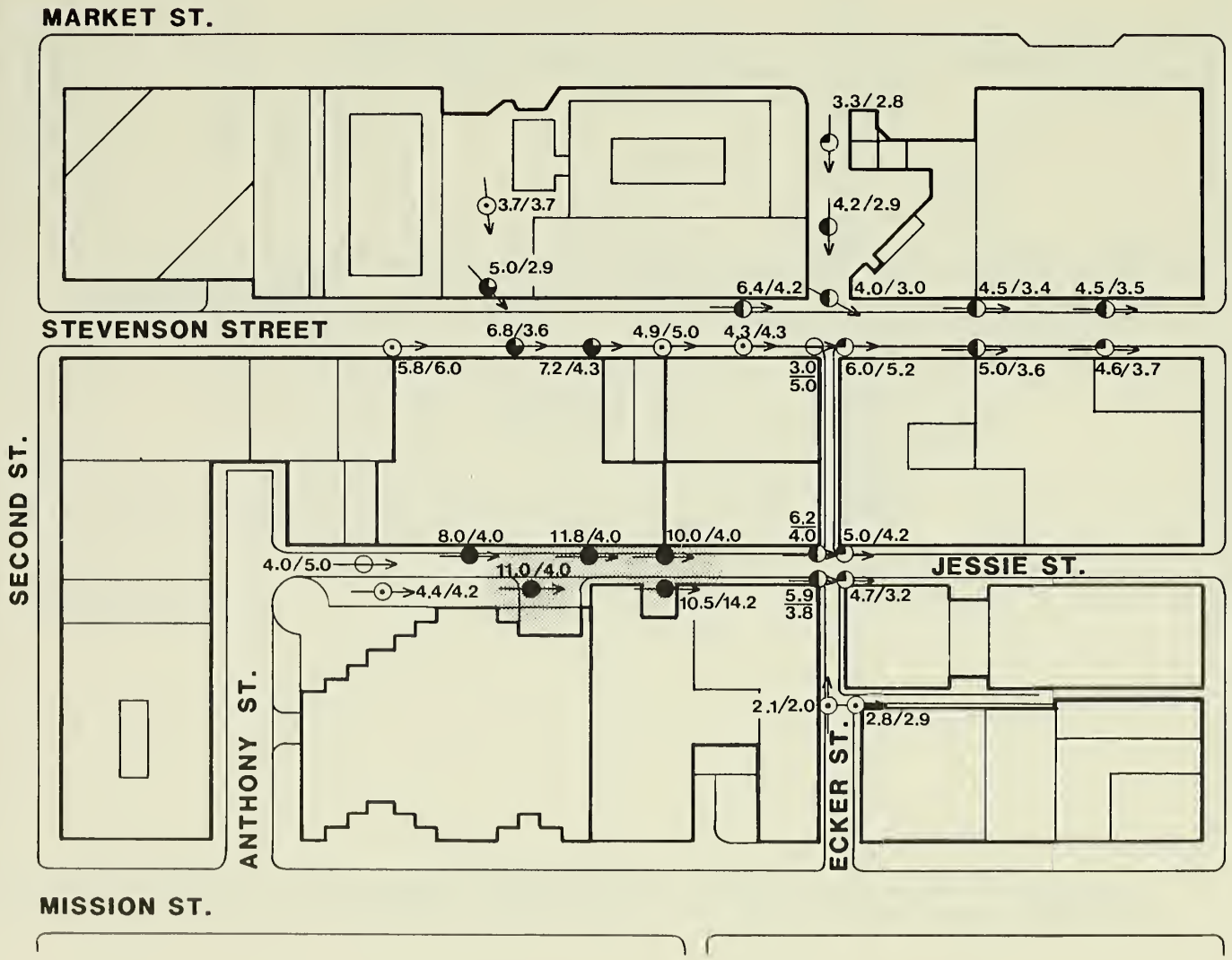
SOUTHWEST WINDS: PROJECT AND 71 STEVENSON



SOURCE: DON BALLANTI

NOT TO SCALE

CHANGE IN WINDSPEED RATION NOT MEASURABLE ○

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INCREASE OF 50-99 % ◕

increase of over 100 % ●

AREA EXCEEDING COMFORT CRITERION

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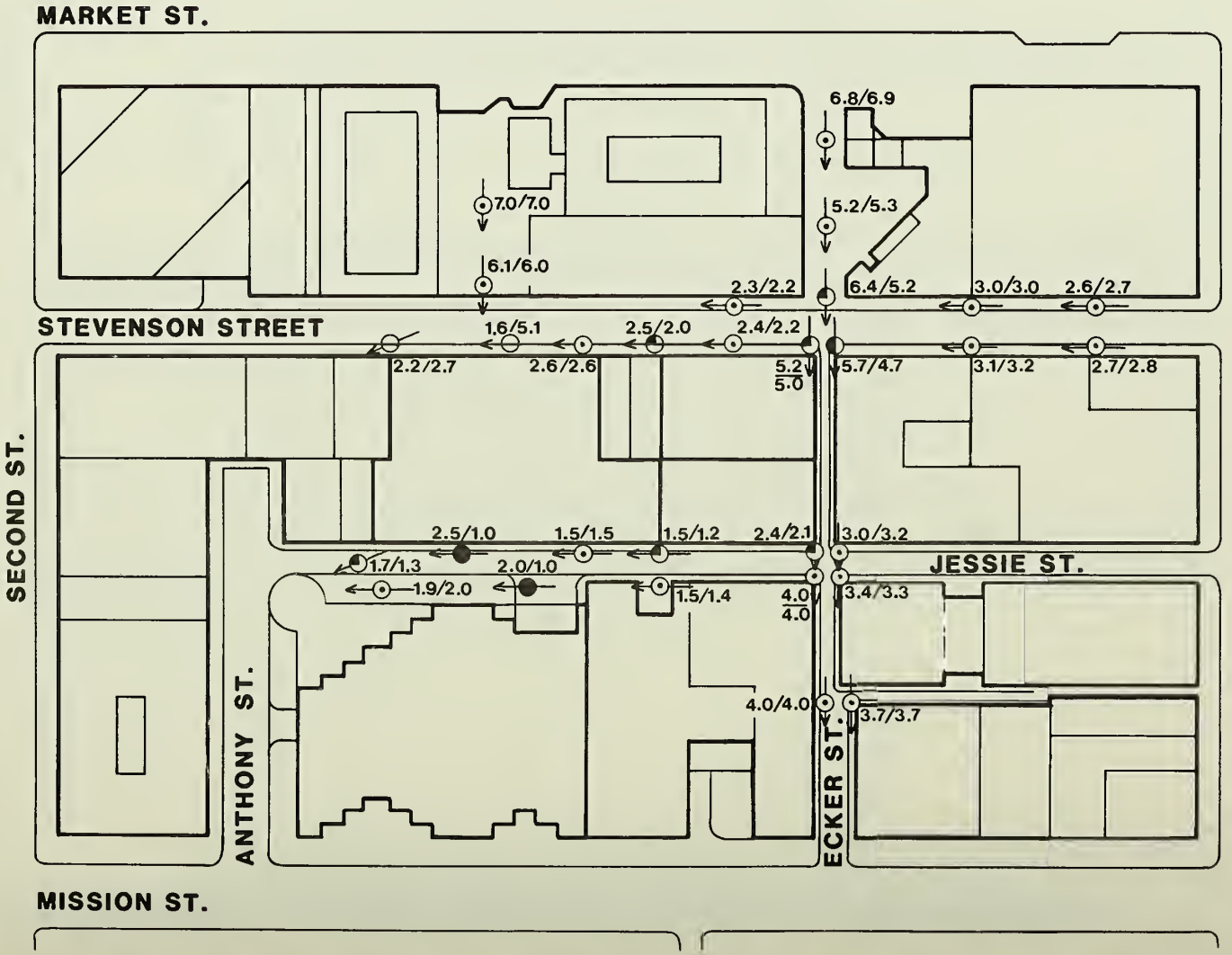
NORTHWEST WINDS: PROJECT AND LINCOLN PLAZA



SOURCE DON BALLANTI

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AREA EXCEEDING COMFORT CRITERION

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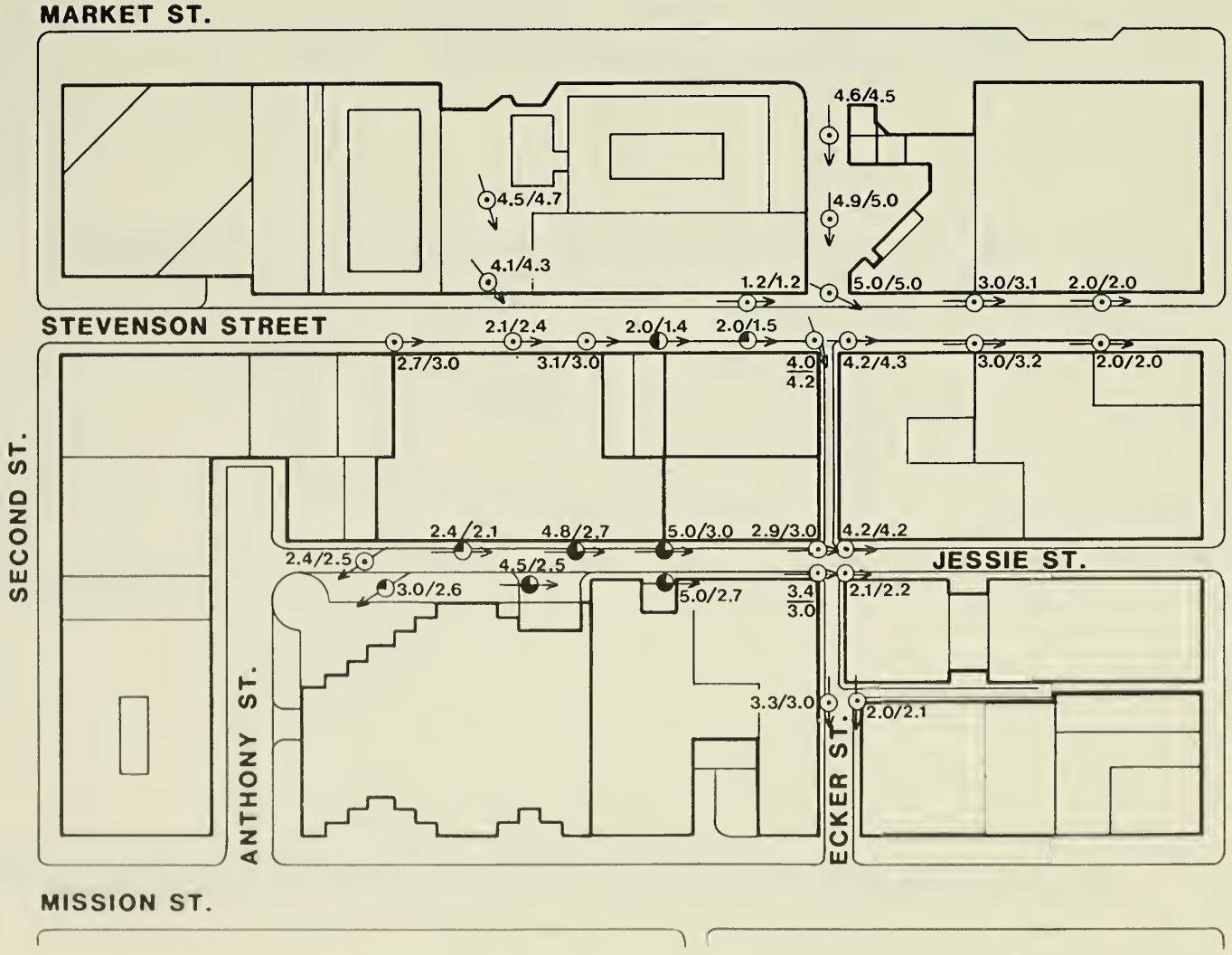
WEST WINDS: PROJECT AND LINCOLN PLAZA



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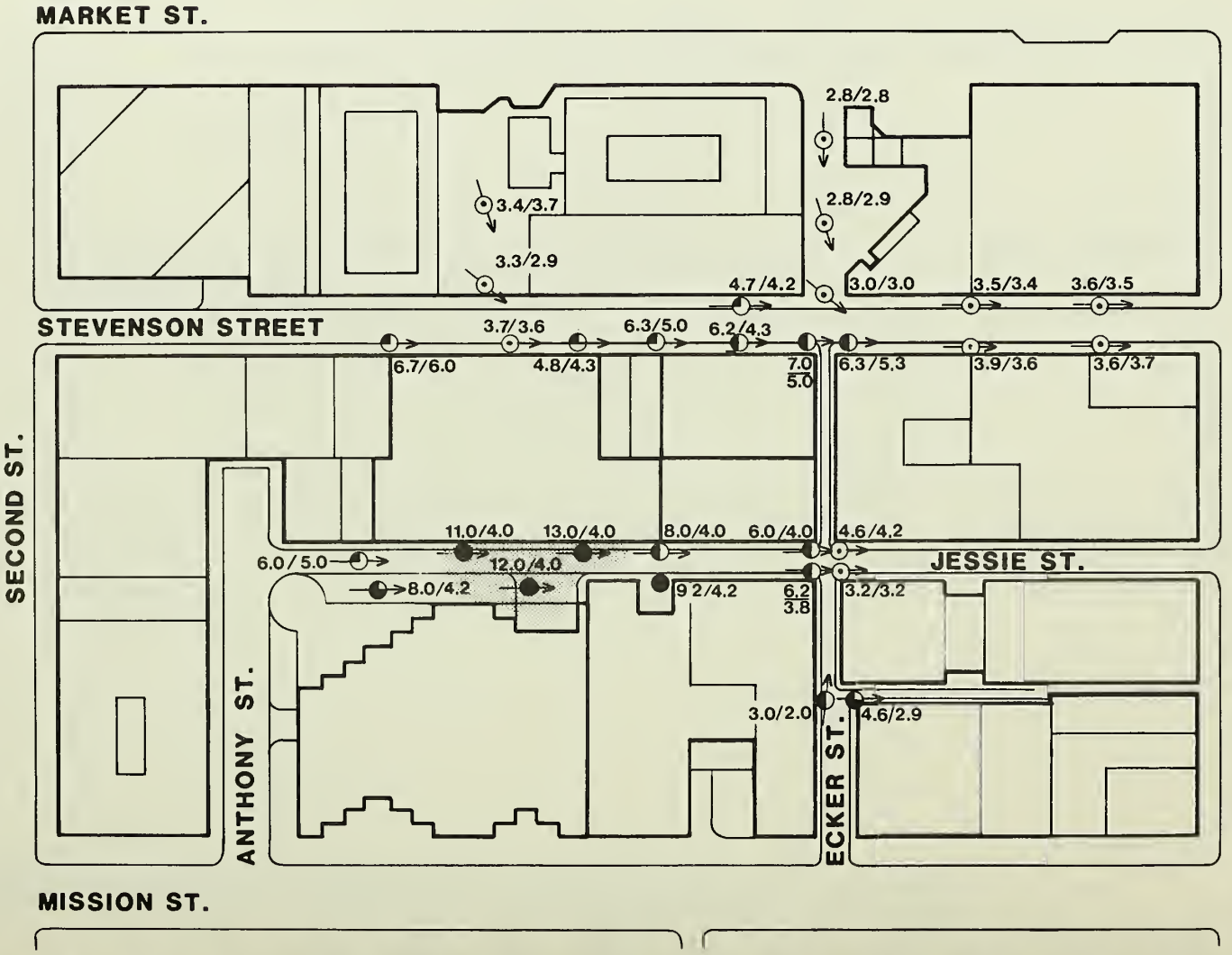
SOUTHWEST WINDS: PROJECT AND LINCOLN PLAZA



SOURCE: DON BALLANTI

NOT TO SCALE

CHANGE IN WINDSPEED RATION NOT MEASURABLE

CHANGE OF LESS THAN 10 %

REDUCTION OF GREATER THAN 10 %

INCREASE OF 10-24 %

INCREASE OF 25-49 %

INCREASE OF 50-99 %

increase of over 100 %

AREA EXCEEDING COMFORT CRITERION

WIND DIRECTION INDICATOR

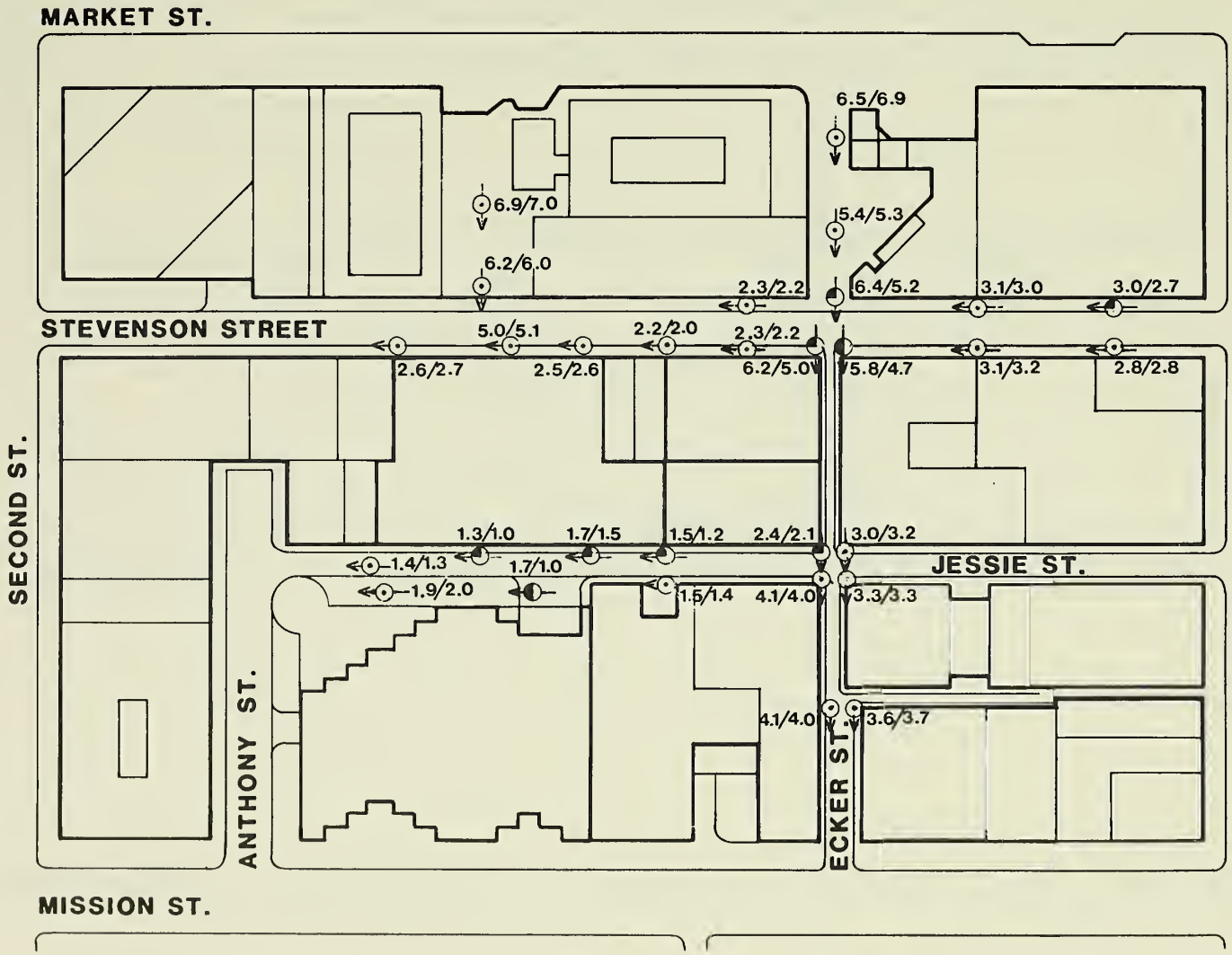
WINDSPEED

WITH PROJECT 3.9/3.0

W/O PROJECT

WINDSPEEDS ARE MEASURED WIND TUNNEL DATA BASED ON A REFERENCE SPEED. WIND AT BAY AREA QUALITY MANAGMENT DISTRICT'S OFFICES AT 939 ELLIS ST. IS USED AS THE REFERENCE. A PLOTTED VALUE OF 5.0 INDICATES AVERAGE WIND SPEED AT THAT POINT IS 5.0 MPH.

NORTHWEST WINDS: PROJECT, 71 STEVENSON AND LINCOLN PLAZA



SOURCE: DON BALLANTI

NOT TO SCALE

CHANGE IN WINDSPEED RATION NOT MEASURABLE

CHANGE OF LESS THAN 10 %

REDUCTION OF GREATER THAN 10 %

INCREASE OF 10-24 %

INCREASE OF 25-49 %

INCREASE OF 50-99 %

increase of over 100 %

AREA EXCEEDING COMFORT CRITERION

WIND DIRECTION INDICATOR

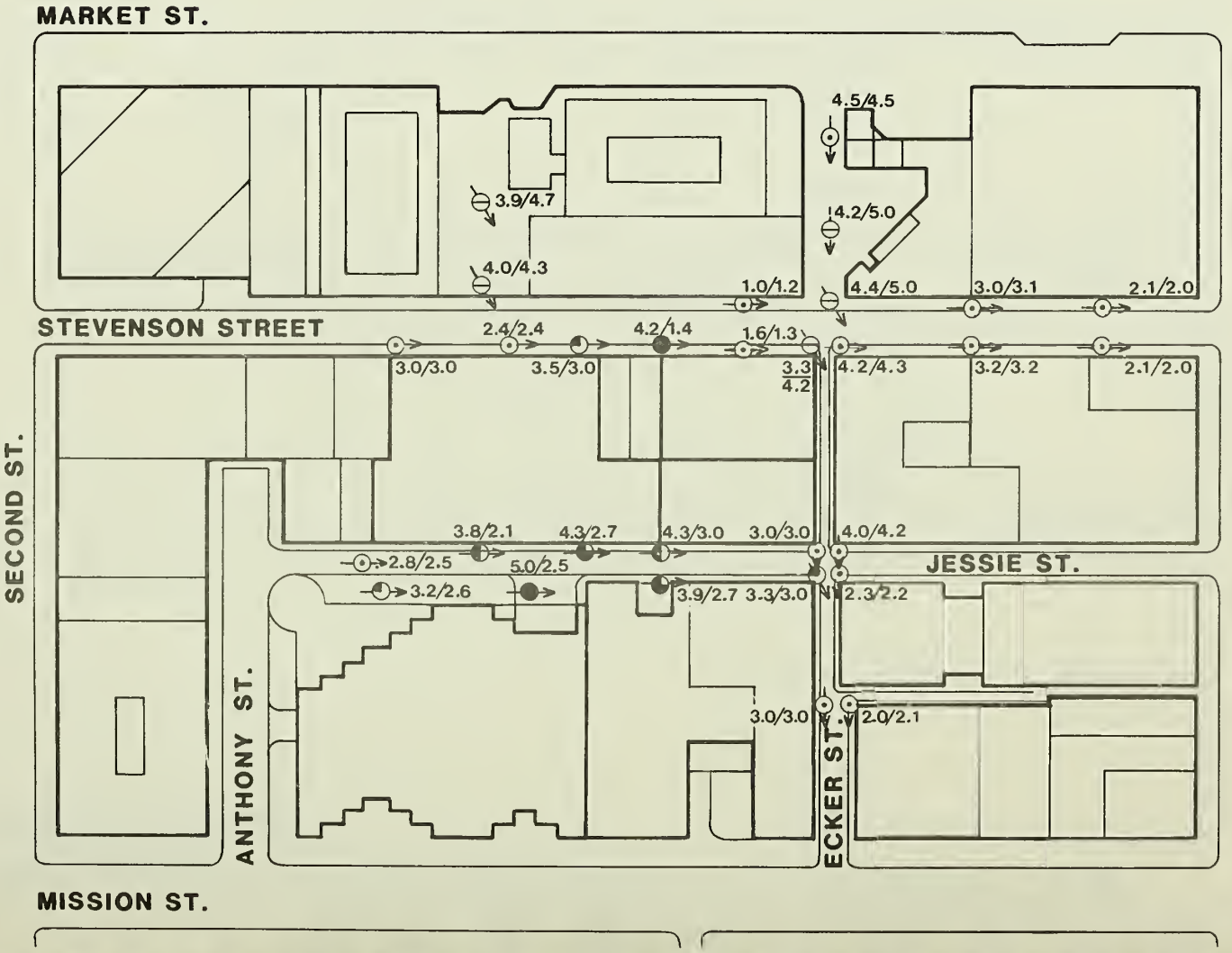
WINDSPEED

WITH PROJECT → 3.9/3.0

W/O PROJECT

WINDSPEEDS ARE MEASURED WIND TUNNEL DATA BASED ON A REFERENCE SPEED. WIND AT BAY AREA QUALITY MANAGMENT DISTRICT'S OFFICES AT 939 ELLIS ST. IS USED AS THE REFERENCE. A PLOTTED VALUE OF 5.0 INDICATES AVERAGE WIND SPEED AT THAT POINT IS 5.0 MPH.

WEST WINDS: PROJECT, 71 STEVENSON AND LINCOLN PLAZA



SOURCE: DON BALLANTI

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WIND DIRECTION INDICATOR

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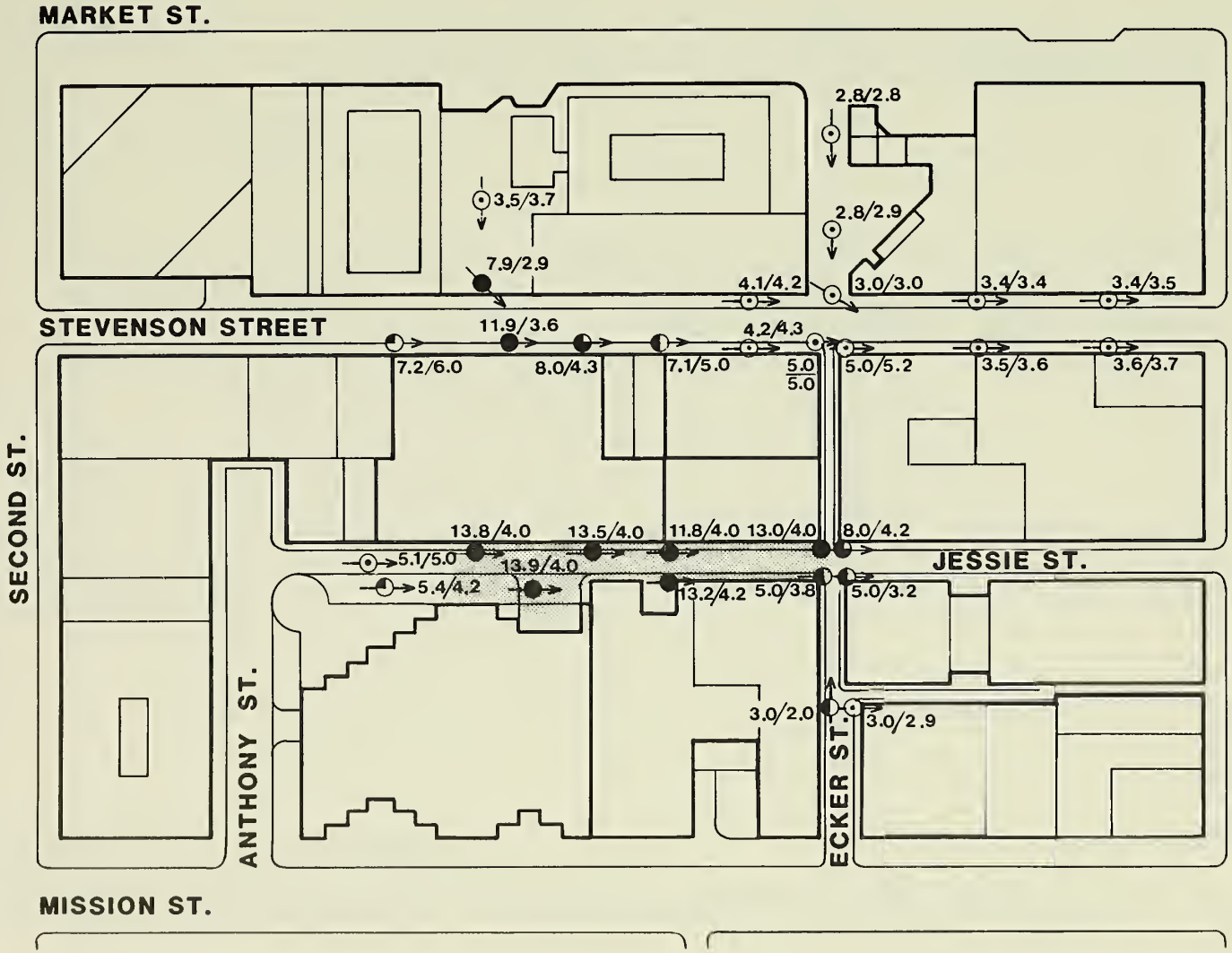
SOUTHWEST WINDS: ALTERNATIVE, 71 STEVENSON AND LINCOLN PLAZA



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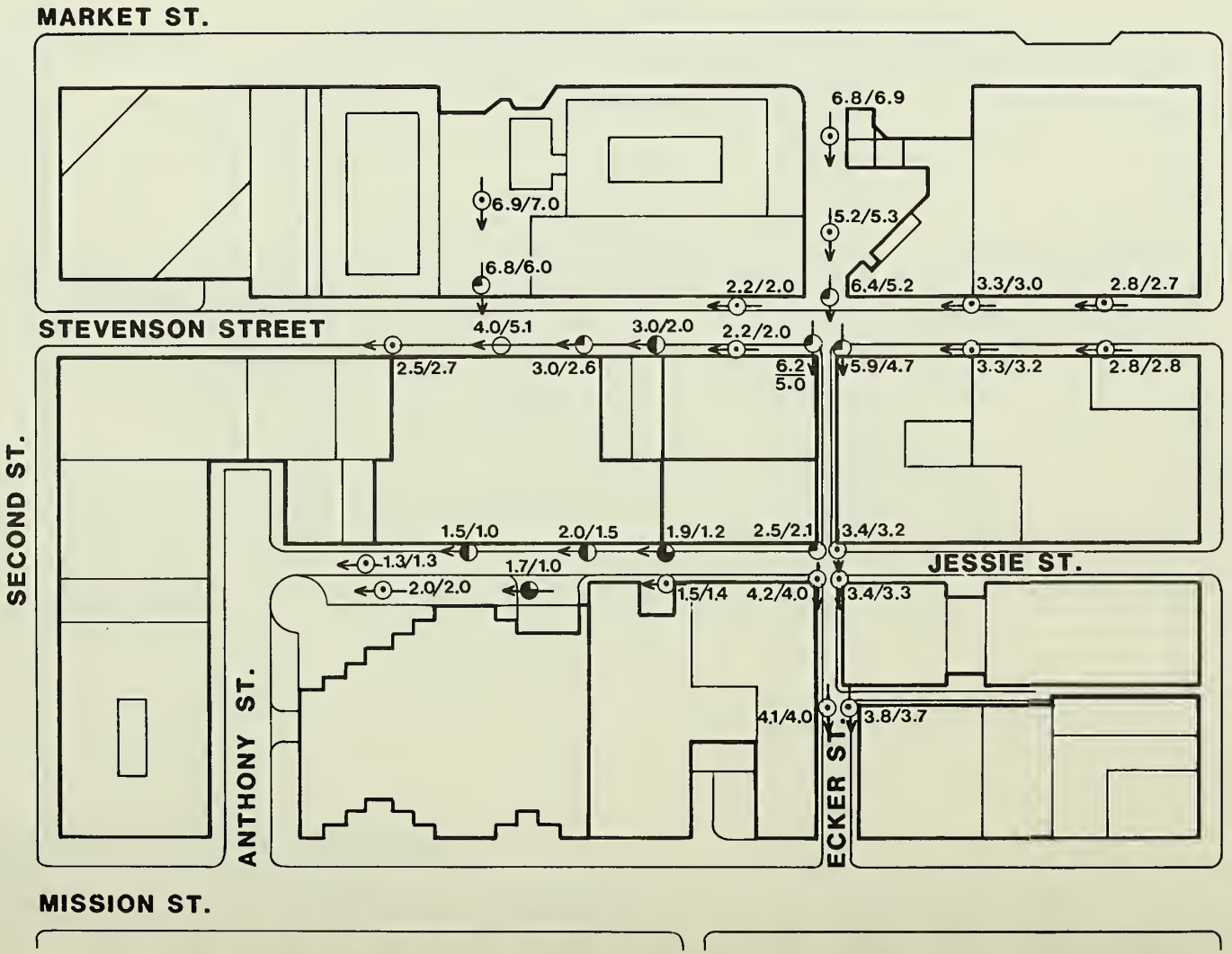

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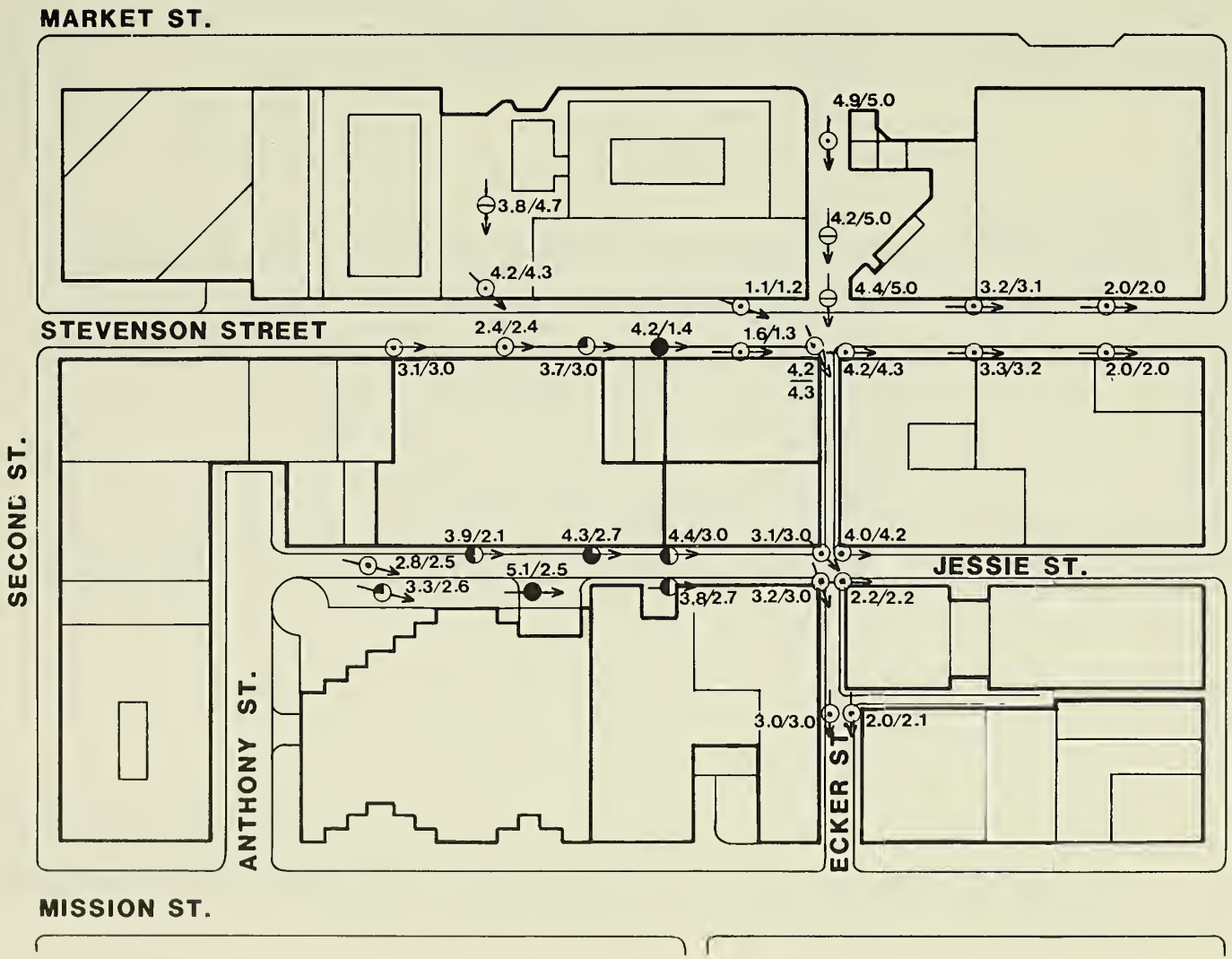
WEST WINDS: ALTERNATIVE, 71 STEVENSON AND LINCOLN PLAZA



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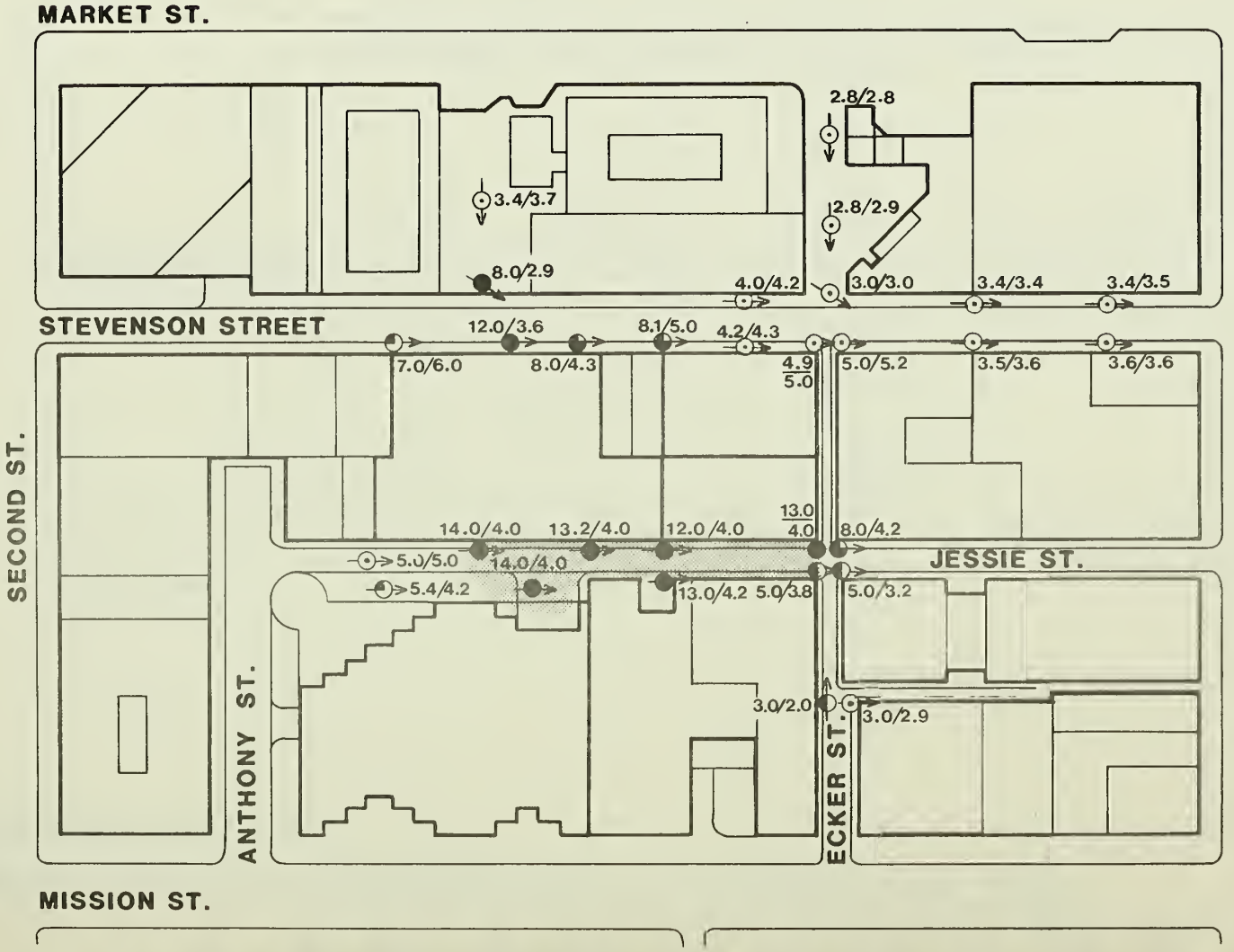

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frontage has the effect of elevating wind accelerations above pedestrian levels. The covered pedestrian walkway along the Stevenson and Ecker Streets frontage offers shelter from rain and wind, when desired.

Donald Ballanti
Certified Consulting Meteorologist

1424 Scott Street
El Cerrito, Ca. 94530
(415) 234-6087

Mr. Stuart During
ENVIRONMENTAL IMPACT PLANNING CORPORATION
319 Eleventh Street
San Francisco, CA 94103

August 11, 1983

Subject: WIND AND COMFORT IMPLICATIONS OF THE CURRENT DESIGN FOR THE 49 STEVENSON STREET PROJECT

Dear Stu:

At your request, I have reviewed the current design of the subject project and the earlier wind tunnel tests conducted on two earlier designs. I offer the following observations:

1) the current design incorporates multiple setbacks and cutouts on the southwest and northwest facades. This will reduce or perhaps eliminate the wind accelerations occuring along Ecker Street for northwest winds and Stevenson Street for southwest winds that were predicted for the earlier design.

2) Wind conditions with either or both the 71 Stevenson and 562 Mission projects would not be affected by the proposed design. The result of wind tunnel tests with these proposals would be similar to that described in the wind tunnel report.

3) In that the earlier design did not cause exceedance of the comfort or hazard criteria, and the current design would have less effect than the earlier design, the new design is not expected to cause exceedance of either criterion.

I hope that you find this analysis useful. Please call if I can be of further assistance.

Sincerely,

Don Ballanti
Certified Consulting Meteorologist

DB:ad.83004

APPENDIX D

FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL NOISE

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

a. the intensity or level of the sound

b. the frequency spectrum of the sound

c. the time-varying character of the sound

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

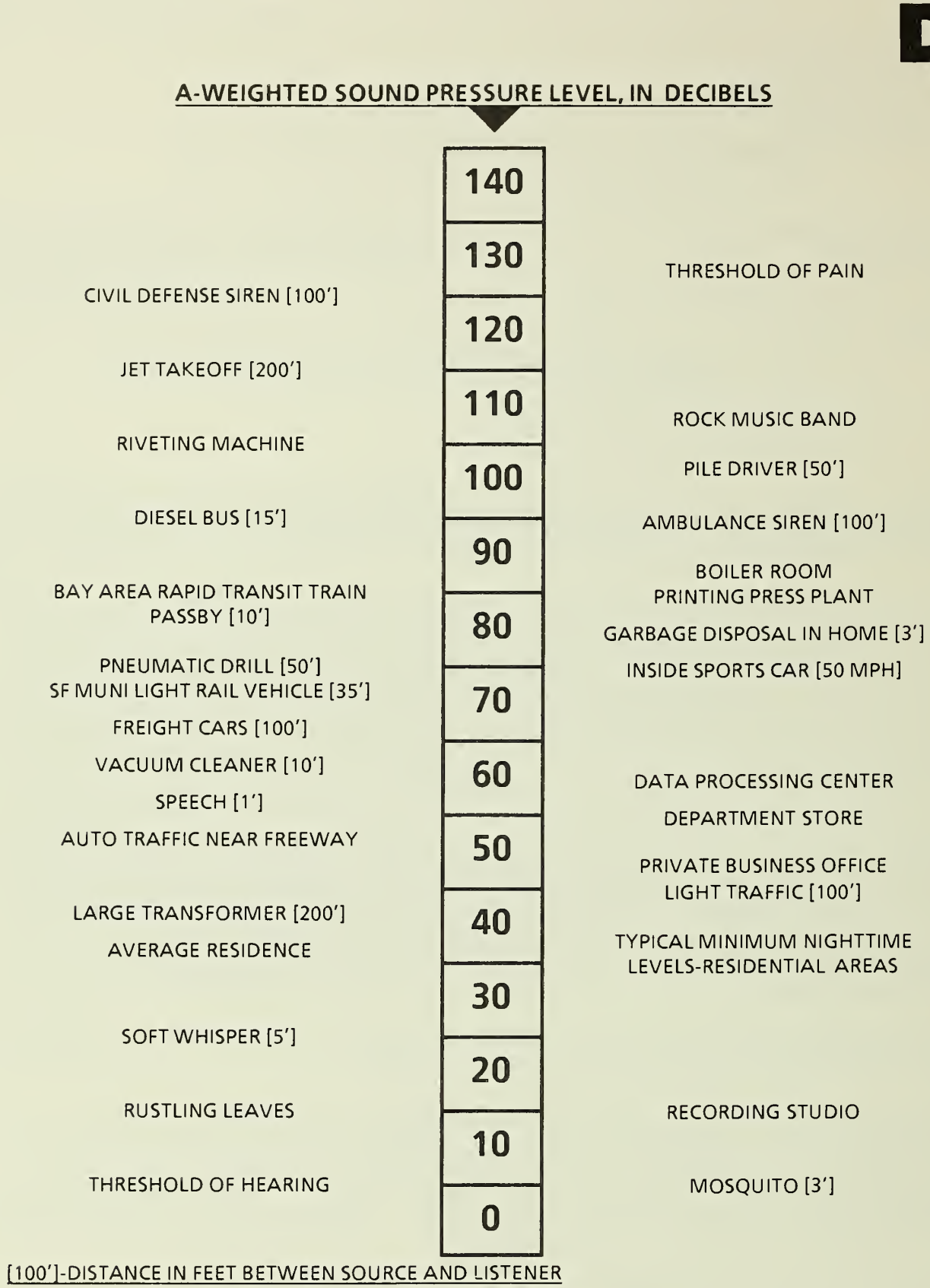
The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or Hertz (Hz). Most of the sounds which we hear in the environment do not consist of a single frequency, but of a broad band of frequencies, differing in level. The quantitative expression of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Fortunately, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively and severely deemphasizes the importance of frequency components below 1000 Hz, with mild deemphasis above 5000 Hz. This type of frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency midrange.

The weighting curve described above is called "A" weighting, and the level so measured is called the "A-weighted sound level," or simply "A-level."

The A-level in decibels is expressed "dBA"; the appended letter "A" is a reminder of the particular kind of weighting used for the measurement. In practice, the A-level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. All U.S. and international standard sound level meters include such a filter. Typical A-levels measured in the environment and in industry are shown in Figure 1.

Although the A-level may adequately describe environmental noise at any instant in time, the fact is that the community noise level varies continuously. Most environmental noise includes a conglomeration of distant noise souces which create a relatively steady background noise in which no particular source is identifiable. These distant sources may



TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

include traffic, wind in trees, industrial activities, etc. These noise sources are relatively constant from moment to moment, but vary slowly from hour to hour as natural forces change or as human activity follows its daily cycle. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities or single vehicle passages, aircraft flyovers, etc., which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. The L10 is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L10 is considered a good measure of the "average peak" noise. The L50 is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period. The L50 represents the median sound level. The L90 is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period. The L90 is used to describe the background noise.

As it is often cumbersome to describe the noise environment with these statistical descriptors, a single number descriptor called the Leq is also widely used. The Leq is defined as the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period. The Leq is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noises become very noticeable. Further, most people are sleeping at night and are very sensitve to noise intrusion.

To account for human sensitivity to nighttime noise levels a descriptor, Ldn, (day-night equivalent sound level) was developed. The Ldn divides the 24-hour day into the daytime of 7 a.m. to 10 p.m. and the nighttime of 10 p.m. to 7 a.m. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Ldn, then, is the A-weighted average sound level in decibels during a 24-hour period with 10 dBA added to the hourly Leqs during the nighttime. For highway noise environments the Leq during the peak traffic hour is approximately equal to the Ldn.

The effects of noise on people can be listed in three general categories:

1. subjective effects of annoyance, nuisance, dissatisfaction
2. interference with activities such as speech, sleep, learning
3. physiological effects such as startle, hearing loss

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Unfortunately, there is as yet no completely satisfactory measure of the subject effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance, and habituation to noise over differing individual past experiences with noise.

Thus, an important parameter in determining a person's subjective reaction to a new noise is the existing noise environment to which one has adapted: the so-called "ambient" noise. "Ambient" is defined as "the all-encompassing noise associated with a given environment, being a composite of sounds from many sources, near and far." In general, the more a new noise exceeds the previously existing ambient, the less acceptable the new noise will be judged by the hearers.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

1. Except in carefully controlled laboratory experiments, a change of only 1 dBA cannot be perceived.

2. Outside of the laboratory, a 3-dBA change is considered a just-noticeable difference.

3. A change in level of at least 5 dBA is required before any noticeable change in community response would be expected.

4. A 10-dBA change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response.

Source : Charles M. Salter Associates, Inc., December 1982.

APPENDIX E
CUMULATIVE DEVELOPMENT

The list of office and retail projects shown in Table C-1 was prepared as a background document for a land use-based method of analyzing cumulative impacts. A land use-based cumulative analysis is one of the two methods of cumulative analyses suggested by the State CEQA Guidelines (Section 15130(b) (1) (A)), whereby a list of related projects is used to determine the combined effects of the whole and to determine the contribution of a proposed office or retail project to the overall cumulative effect. This is only one method of determining cumulative impacts. The other method of determining cumulative impacts is an analysis based on estimates of total employment projected for the area. This latter method is permitted by State Guidelines Section 15130(b) (1) (B) if the employment projections are based on an appropriate planning document.

The attached cumulative list is an expanded version of past lists and includes all office and large retail projects proposed, approved, under construction and recently completed in the greater downtown area which have active applications in the Department of City Planning. This list is appropriate for use only in a land use-based analysis of the cumulative impacts of office/retail projects in the greater downtown.

Relevant Redevelopment Agency projects have been included in the list. The Rincon Point/South Beach Redevelopment Area includes four projects: 77,000 square feet of office space at 181 Steuart Street, 200,000 square feet of office space on First Street, and a 30,000-square-foot office building, all in at least preliminary negotiation stages between the Agency and potential developers; and 453,000 square feet of office space proposed by the U.S. Post Office at the Rincon Annex site (source: San Francisco Redevelopment Agency). The listing for the Yerba Buena Gardens in the YBC Redevelopment Area includes 1.2 million square feet of office space in the Olympia and York proposal (source: S.F. Redevelopment Agency). Other office buildings in the YBC and applicable parts of the Western Addition Redevelopment Areas are listed under individual

APPENDIX E

TABLE E-1

CUMULATIVE DOWNTOWN OFFICE DEVELOPMENT IN SAN FRANCISCO AS OF MARCH 10, 1984

PROJECTS UNDER FORMAL REVIEW

Assessor's Block	Case No.	Project Name	Office Gross Sq. Ft.		Retail Gross Sq. Ft.	
			Total New Construction	Net New Construction	Total New Construction	Net New Construction
59	83.177E	1620 Montgomery	82,270	45,390	---	---
110	82.129E	Embarcadero Terraces (1000 Front)	139,000	139,000	3,000	3,000
112	83.447E	1100 Sansome	55,000	48,000	---	---
113	82.418E	1171 Sansome	30,000	30,000	---	---
113	8264603	220 Green	3,520	3,520	---	---
130	83.612C	1558 Powell	2,500	2,500	---	---
136	83.476V	962 Battery	15,000	15,000	---	---
192	83.412ED	1055 Stockton	---	---	81,500	66,500
194	83.128E	732 Washington	17,500	17,500	11,240	11,240
195	82.643E	660 Washington	3,938	3,938	---	---
227	82.463E	505 Montgomery	327,300	300,670	12,100	-4,775
228	83.422E	560 Sacramento	48,000	31,000	---	---
229	83.222EC	Embarcadero West	575,000	382,000	9,000	9,000
236	82.511E	222 Front	40,250	33,400	3,250	0
258	82.421E	Pine/Kearny	186,000	186,000	6,750	6,750
266	83.420ED	98 Battery	169,000	106,500	---	---
267	83.421ED	225 Pine	134,000	134,000	---	---
287	83.91ED	237 Kearney/Bush	99,600	87,800	6,100	2,400
288	83.148E	665 Bush (M)	12,400	2,600	---	-2,700
309	83.333E	212 Stockton	32,220	15,885	21,700	16,200
326	8312187	156 Ellis	3,200	3,200	---	---
327	82.445E	Stockton/O'Farrell	43,300	25,750	57,950	28,000
331	81.448E	Mixed Use Development (M)	50,000	50,000	70,000	49,000
336	83.21ECV	440 Turk	25,000	8,150	---	---
642	83.218V	1699 Van Ness	20,000	20,000	---	---
814	81.540E	101 Hayes	132,000	132,000	6,000	6,000
3526	83.475V	530-550 9th	42,300	42,300	---	---
3702	83.196E	1169 Market, Trinity	820,000	805,000	40,000	40,000

TABLE E-1
(continued)

PROJECTS UNDER FORMAL REVIEW (continued)

Assessor's Block	Case No.	Project Name	Office Gross Sq. Ft. Total New Construction	Office Gross Sq. Ft. Net New Construction	Retail Gross Sq. Ft. Total New Construction	Retail Gross Sq. Ft. Net New Construction
3704	83.404	901 Market, Penney's	145 500	126,000	80,000	80,000
3705	83.314E	5th and Market	880,000	778,000	120,000	40,000
3707	SFRA	YBC Office Bldg.	593,000	593,000	---	---
3708	81.297ED	Lincoln Plaza (562 Mission)	405,000	265,000	10,000	10,000
3708	83.75E	49 Stevenson	169,600	136,900	9,800	-2,900
3721	83.331E	100 First @ Mission	348,920	342,000	---	---
3721	83.40EZD	524 Howard	279,000	279,000	15,000	15,000
3735	83.313E	35 Hawthorne	47,400	47,400	2,900	2,900
3736	83.311E	299 2nd @ Folsom	206,000	171,000	10,000	10,000
3744	84.41E	Hills Brothers	635,000	535,000	40,000	40,000
3749	83.464EV	50 Guy Place	17,500	17,500	---	---
3752	83.310E	837 Folsom	200,000	200,000	---	---
3769	83.213EV	59 Harrison	113,500	49,750	---	---
3776	83.451E	501 Bryant	67,000	35,000	14,000	4,000
3778	83.547E	775 Bryant	27,890	27,890	3,675	3,675
3786	82.33E	655 5th/Townsend	126,250	126,250	---	---
3786	83.272EV	525 Brannon	13,500	13,500	---	---
3788	82.352EV	640 2nd Street	39,100	37,400	---	---
3789	82.31EV	615 2nd/Brannan (C)	90,000	70,000	9,300	9,300
3794	83.545V	139 Townsend	51,200	50,000	---	---
3923	81.491EVF	1550 Bryant	80,600	49,600	---	---
-	SFRA	Yerba Buena Gardens	1,340,000	1,340,000	---	---
-	SFRA	Rincon Point/S. Beach	760,000	760,000	---	---
	TOTAL PROJECTS UNDER FORMAL REVIEW		9,744,260	8,721,295	643,265	442,590

(C) = Conversion (generally industrial and/or warehouse to office)
(M) = Mixed Use (office/residential/commercial)

TABLE E-1
(continued)

APPROVED PROJECTS

Assessor's Block	Case No.	Project Name	Office Gross Sq. Ft. Total New Construction	Office Gross Sq. Ft. Net New Construction	Retail Gross Sq. Ft. Total New Construction	Retail Gross Sq. Ft. Net New Construction
65	82.168V	990 Columbus	12,000	12,000	---	---
112	81.258	Ice House Conversion (C)	209,000	209,000	---	---
164	81.583D	50 Osgood Place	22,500	22,500	9,100	9,100
176	82.368E	900 Kearny	25,000	25,000	5,000	5,000
176	83.229E	801 Montgomery	31,800	31,800	6,200	6,200
225	81.403ED	814 Stockton	3,500	3,500	3,300	3,300
265	81.195ED	388 Market at Pine (M)	234,500	85,500	10,000	-8,500
268	81.422D	250 Montgomery at Pine	105,700	65,700	8,000	8,000
271	83.13E	582 Bush	18,100	18,100	800	800
288	81.687ED	222 Kearny/Sutter	150.000	49,950	10,000	-8,400
294	82.87D	44 Campton Place	7,600	7,600	---	---
642	82.224VEC	1750 California	82,525	82,525	---	---
669	81.667ED	1361 Bush	13,000	13,000	---	---
671	82.24V	1581 Bush (C)	16,000	16,000	---	---
690	SFRA	Post/Van Ness	88,000	88,000	---	---
716	81.581ED	Polk/O'Farrell (M)	61,600	61,600	22,400	22,400
818	83.94EV	583-591 Hayes (C)	4,900	4,900	---	---
3504	82.137V	44 Gough (C)	30,000	30,000	---	---
3702	81.549ED	1145 Market	137,500	108,500	8,000	8,000
3705	80.315	Apparel Mart III	332,400	332,400	---	---
3707	81.492ED	90 New Montgomery	124,300	124,300	3,350	3,350
3707	81.245DA	New Montgomery Place	227,500	209,700	2,200	-3,900
3708	81.493ED	71 Stevenson	324,600	324,600	6,200	6,200
3709	81.113ED	Central Plaza	353,100	136,300	17,400	17,400
3717	81.183E	123 Mission	342,800	342,800	---	---
3724	81.102E	Holland Ct. (C)	27,850	27,850	---	---
3729	82.86D	774 Tehama	5,800	5,800	---	---
3733	EE81.2	868 Folsom	65,000	65,000	---	---
3733	82.29E	832 Folsom	50,000	50,000	---	---
3735	SFRA	75 Hawthorne (C)	61,900	61,900	---	---
3738	DR80.5	315 Howard	294,000	294,000	3,200	3,200
3749	EE81.18	Marathon - 2nd & Folsom	686,700	686,700	35,300	35,300
3750	82.241E	600 Harrison	228,000	228,000	10,000	10,000
3750	82.77V	642 Harrison (C)	54,400	45,900	---	---
3764/74	82.591E	Second Street Square (C)	333 000	263,000	25,000	25,000
3775	81.147V	338-340 Brannan (C)	36,000	36,000	---	---

TABLE E-1
(continued)

APPROVED PROJECTS (continued)

Assessor's Block	Case No.	Project Name	Office Gross Sq. Ft. Total New Construction	Office Gross Sq. Ft. Net New Construction	Retail Gross Sq. Ft. Total New Construction	Retail Gross Sq. Ft. Net New Construction
3776	EE81.59	Welsh Commons (M)	55,600	55,600	12,000	12,000
3788	81.296Z	690 2nd/Townsend (C)	16,600	16,600	16,000	16,000
3789	81.552EV	625 2nd/Townsend (C)	157,000	157,000	---	---
3794	81.569EV	123 Townsend	104,000	49,500	---	---
3794		155 Townsend	19,000	19,000	---	---
3803	81.244D	China Basin Expansion	196,000	196,000	---	---
9900	81.63E	Ferry Building Rehab	309,500	97,500	163,500	124,000
	TOTAL APPROVED PROJECTS		**5,658,275**	**4,760,625**	**376,950**	**294,450**

(C) = Conversion (generally industrial and/or warehouse to office)
(M) = Mixed Use (office/residential/commercial)

TABLE E-1
(continued)

PROJECTS UNDER CONSTRUCTION

Assessor's Block	Case No.	Project Name	Office Gross Sq. Ft. Total New Construction	Office Gross Sq. Ft. Net New Construction	Retail Gross Sq. Ft. Total New Construction	Retail Gross Sq. Ft. Net New Construction
58	82.234E	Roundhouse (C)	45,000	45,000	3,000	3,000
136	81.243E	955 Front/55 Green	50.000	50,000	---	---
143	81.353ED	1000 Montgomery (C)	39,000	39,000	---	---
146	83.99EC	644 Broadway	42,800	42,800	---	---
161	DR80 191	Mirawa Center	36,000	36,000	30,650	30,650
166	DR80.15	750 Battery	105,400	105,400	12,800	12,800
166	CU81.7	222 Pacific at Front (C)	142,000	142,000	---	---
167	SFRA	Golden Gateway III	103,000	103,000	---	---
176	81.673EACV	Columbus/Pacific (Savoy)	49,000	49,000	22,000	22,000
208	81.104EDC	Washington/Montgomery (M)	235,000	233,300	4,000	-1,200
227	EE80.296	Bank of Canton	230,500	177,500	---	-800
239	DR80.1	456 Montgomery	160,550	160,550	24,250	24,250
240	81.705ED	580 California/Kearny	329,500	260,000	6,500	6,500
261	81.249ECQ	345 California (M)	640,000	466,500	15,500	15,500
262	81.206D	130 Battery	41,000	41,000	---	---
270	81.175ED	466 Bush	86,700	86,700	7,800	2,200
271	81.517	453 Grant	27,500	27,500	6,200	6,200
288	81.461EC	333 Bush (Campeau) (M)	498,400	458,100	20,900	20,900
288	DR80.24	101 Montgomery	264,000	234,000	4,900	-14,100
289	81.308D	One Sansome	603,000	603,000	7,000	7,000
311	82.120D	S. F. Federal	246,800	218,850	1,600	-9,440
351	DR79.24	Mardikian/1170 Market	40,000	40,000	---	---
641	82.200CV	1735 Franklin (C)	8,600	8,600	---	---
672	SFRA	Wealth Investments	104,500	104,500	---	---
743	SFRA	Van Ness/Turk (Vanguard)	85,000	85,000	---	---
767	STATE	State Office Building	293,300	293,300	---	---
816	82.212ED	300-350 Gough (M/C)	16,000	16,000	---	---
834	82.603E	25 Van Ness (C)	101,800	42,800	36.400	36,400
3512	82.14	Van Ness Plaza	170,000	170.000	6,000	6,000
3715	82.16EC	121 Steuart	33,200	33,200	---	---
3715		141 Steuart	80.000	80,000	---	---
3717	EE79.236	101 Mission	219,350	219,350	---	---
3717	EE80.349	Spear/Main (160 Spear)	279,000	279,000	7,600	7,600
3717	82.82D	135 Main	260,000	260,000	4,000	4,000
3722	81.417ED	144 Second at Minna	30,000	30,000	---	---
3741	82.203C	201 Spear	229,000	229,000	5,200	5,200
3787	81.306	252 Townsend at Lusk	61,000	61,000	---	---
	TOTAL PROJECTS UNDER CONSTRUCTION		5,985,900	5,530,950	226,300	184,660
	TOTAL (ALL PROJECTS)		21,388,430	19,012,870	1,246,515	921,700

(C) = Conversion (generally industrial and/or warehouse to office)
(M) = Mixed Use (office/residential/commercial)

Source: San Francisco Department of City Planning

building names or addresses, based on information obtained from regular contact with Redevelopment Agency staff. Other jurisdictions are also contacted when the cumulative list is updated: the new 293,000-square-foot State Office Building under construction at Van Ness and McAllister is included; no Federal office space is proposed in downtown San Francisco in the near future other than that at the Rincon Annex Post Office site in the Rincon Point Redevelopment Area (John Scales, General Services Administration, telephone conversation, April 11, 1984).

Hotel projects have not been included in the list because hotel uses have different peak-travel characteristics from office buildings. They generally do not significantly affect peak-hour traffic or transit and therefore do not contribute to effects such as maximum production of air pollutants (see file No. EE81.61, 135 Main Final Supplemental EIR, certified November 30, 1982, page 150). Residential projects have not been included because the few residential structures in the study area are unrelated to office uses. Residential travel in the downtown usually takes place in the contra-commute direction during peak hours and thus does not contribute to cumulative traffic or transit congestion. In addition, office trips in the p.m. peak period are assumed to be made by workers traveling to their residences. Trip generation calculated for residential uses includes persons returning to their homes after work in the p.m. peak period. Inclusion in the cumulative analysis of residential uses in downtown San Francisco would double count project-generated travel: once when employees left their office building and again when they arrived at their residence (if they lived in the downtown area).

Approximately 1.3 million square feet of office space is proposed for locations outside the greater downtown area. All but two of these projects (San Francisco Executive Park just east of U.S. 101 near the southern border of San Francisco, proposed for about 1.1 million square feet, and St. Mary's Medical Office Building on Shrader at Fulton, proposed to be about 90,000 square feet) are under 10,000 square feet. These projects are not included on the cumulative list because their impacts do not accumulate measurably with office space in the downtown area. Although the Executive Park proposal would contribute to auto traffic on U.S. 101, the critical analysis points for p.m. peak-period cumulative downtown traffic on U.S. 101 are the freeway entrances near downtown, the approaches to the Bay Bridge, and the Alemany interchange, which restricts southbound U.S. 101 traffic in the p.m. peak period. The Executive Park traffic would not contribute measurably to peak demands on freeway entrances near downtown or peak direction at

peak-period impacts on the Alemany interchange. It is factored in as part of the traffic approaching the Bay Bridge before cumulative downtown development is added. (Executive Park Subsequent DEIR (81.197E), September 9, 1983. Note that an EIR was prepared in 1976 for a project on this site; following permits for four of the proposed office buildings, the developer made major changes in the project that necessitated the new EIR now in process.)

The Department's master project log contains listings for projects that are no longer active for various reasons, such as no action by project sponsor in over one year, application withdrawn by sponsor, or project proposal revised to non-office or non-retail uses (examples of these projects include 272 Sutter, approximately 65,000 square feet, withdrawn by sponsor; 2nd and Harrison, 49,000 square feet, application revised from office space to parking lot). Some of these files have not been formally closed due to higher staff priorities; however, the projects are not included on the cumulative list when staff concludes that the office project has been abandoned, withdrawn or the scope or nature of the proposal is so uncertain as to not be reasonably foreseeable.

In EIRs prepared during the latter half of 1983, the list used for cumulative analyses included a section labeled "Completed But Not in Base Case." As of the end of 1983, that list totaled over 6 million square feet of office space and about 225,000 square feet of retail space. These projects were included on earlier lists even though they were built and fully or partially occupied because some of the baseline data (measurements of the existing situation) for some transportation systems was collected in about mid-1982 and thus could not include the effects of these projects. The baseline has recently been updated to reflect 1984 for use in the Downtown Plan Draft EIR. Projects completed before 1984 are included in the updated baseline data. Using 1984 as the existing baseline situation means that projects completed by the end of 1983 should be omitted from the list of projects used for cumulative analyses in order to avoid counting the projects twice. Because some of the baseline data previously used was collected more recently than mid-1982, list-based cumulative analyses overestimated some reported impacts by measuring the effects of office buildings as part of the baseline existing situation and by including the same office building in the calculations of future cumulative impacts. For example, PG&E is already serving office buildings completed in 1982 and 1983; including those buildings in calculations of future cumulative energy demand would count them twice.

Therefore, for some parts of the cumulative analyses, omitting projects completed in 1983 will provide more realistic predictions of future conditions.

TABLE E-2

GROSS SQUARE FEET OF CUMULATIVE OFFICE AND RETAIL DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF March 10, 1984

	Office (Gross Sq. Ft.)		Retail (Gross Sq. Ft.)	
Status of Project	Total New Construction	Net New Construction	Total New Construction	Net New Construction
Under Formal Review	9,744,260	8,721,295	643,265	442,590
Approved	5,658,275	4,760,625	376,950	294,450
Under Construction	5,985,900	5,530,950	226,300	184,660
Grand Totals	**21,388,430**	**19,012,870**	**1,246,515**	**921,700**

The Department is aware of a proposal for the Southern Pacific property near China Basin, called "Mission Bay." The application for environmental review for that project has been withdrawn; no other applications have been filed. The project is too speculative to analyze; intensity, density and types of uses have not yet been determined by the developer. Parts of the developer's original proposal would require major rezoning and amendment of the City's Comprehensive Plan. Further, two San Francisco Supervisors have proposed that the City acquire the property, and one neighborhood has prepared a development plan quite different from that withdrawn by the developer. Without more settled decisions about this property, it is not reasonably foreseeable to include it in the cumulative list analysis.

The Department of City Planning is preparing plans and environmental analyses for several areas in or near the downtown. Because these plans involve only proposals for zoning and other land use controls, they are not properly part of any

cumulative list. Although analyses for these plans sometimes predict amounts of office space that could be built in the area being studied, the predictions are for purposes of assessing impacts of the plans and in no way reflect proposed future development.

Use of the Department's list for estimating cumulative impacts builds in certain limitations. It assumes, for example, that all proposals will be built at essentially the size proposed and that all buildings, once built, will be fully occupied. It is important to note that the cumulative list has not been adjusted to reflect temporary limitations on growth imposed by the City's actions to establish a Special Use District in the South of Market area and a moratorium on new office and hotel space over 50,000 gross square feet. Nor has any adjustment been made to account for reduced building potential as proposed in the Downtown Plan (base FAR of 14:1 reduced to 10:1). Thus, the total square footages on the list of projects under formal review may be overestimated, and impacts based on the square footages may also be overestimated if some buildings are not built, not fully occupied or reduced in size.

Existing office and retail space that would be replaced by new buildings was subtracted from the proposed new construction to better approximate the impacts the new buildings would have on transportation facilities. As shown in Table C-2, net new office and retail space is less than total new construction as a result of subtracting out existing office and retail space on sites proposed for new buildings. ("Net new" space is used to refer to the amount of new construction in excess of existing space on each site in terms of gross square feet of floor space. It does not refer to net leasable or net rentable floor space.)

Existing major office building construction in San Francisco is shown in Table E-3, page A-71.

TABLE E-3

MAJOR OFFICE BULDING
CONSTRUCTION IN SAN FRANCISCO
(In gross square feet)

Year	Total Gross Square Feet Completed	5-Year Total	5-Year Annual Average	Cumulative Total of Office Buildings[2]	Cumulative Total of All Downtown Office Buildings[3]
Pre-1960				28,145,000	24,175,000
1960	1,183,000				
1961	270,000				
1962	-				
1963	-				
1964	1,413,000				
1960-1964		2,866,000 (2,580,000)[3]	573,200 (516,000)[3]	30,725,000	26,754,000
1965	1,463,000				
1966	973,000				
1967	1,453,000				
1968	1,234,000				
1969	3,256,000				
1965-1969		8,379,000 (7,541,000)[3]	1,675,800 (1,508,000)[3]	38,266,000	34,295,000
1970	1,853,000				
1971	-				
1972	1,961,000				
1973	2,736,000				
1974	2,065,000				
1970-1974		8,615,000 (7,753,000)[3]	1,723,000 (1,550,000)[1]	46,019,000	42,048,000

(continued)

TABLE E-3

MAJOR OFFICE BULDING
CONSTRUCTION IN SAN FRANCISCO

(continued)

Year	Total Gross Square Feet Completed	5-Year Total	5-Year Annual Average	Cumulative Total of All Office Buildings[2]	Cumulative Total of All Downtown Office Buildings[3]
1975	536,000				
1976	2,429,000				
1977	2,660,000				
1978	-				
1979	2,532,000				
1975-1979		8,157,000 (7,341,000)[1]	1,631,400 (1,468,000)[1]	53,360,000	49,389,000
1980	1,284,000				
1981	3,029,000				
1982	3,771,000				
1983	4,107,700				
1980-1982		12,191,700[4] 10,972,500[1]	3,047,900[4] 2,743,100[1]	64,332,500	62,100,000

[1]Total net square feet (90% of gross). Net new space is added at an increase factor of 90%, since it is assumed that space equal to 10% of a new building is demolished to make land available for the new replacement building

[2]San Francisco Downtown Zoning Study, Working Paper No. 1, January 1966, Appendix Table 1, Part 1. For pre-1965, data include the area bounded by Vallejo, Franklin, Central Skyway, Bryant and the Embarcadero. Pre-1965 data also includes one-third of retail/office mixed use. For post-1964, data include the entire city.

[3]Gross floor space for downtown offices is included for the following functional areas: Financial, Retail, Hotel, Jackson Square, Golden Gateway, Civic Center, South of Market, and Outer Market Street as defined in the cited January 1966 report. For post-1964, the entire area east of Franklin Street is included.

[4]Four-year total and average.

Source: Department of City Planning, March 15, 1983

Cum Dev. App.

Revised

TABLE F-1

PROJECTED EFFECTS OF DOWNTOWN OFFICE DEVELOPMENT ON REGIONAL HOUSING MARKETS

Housing Market	Net Project Demand in 1985 Number of Households	Gross Cumulative Demand[3] 1982 to 1990 Number of Employees	Gross Cumulative Demand[3] 1982 to 1990 Number of Households	Net[4] Housing Stock 1982-1990	Project Demand as % of Growth 1982-1990	Cumulative Demand as % of Growth 1982-1990
San Francisco[1]	59-122	11,400 to 30,400	8,100 to 16,900	12,000	0.5-1.0	68-141
North Bay[2] (Marin and Sonoma Counties)	38	6,800	5,200	36,800	0.1	14
Peninsula[2] (San Mateo and Santa Clara Counties)	55	9,900	7,600	87,600	0.1	9
East Bay[2] (Alameda and Contra Costa Counties)	160	28,900	22,200	111,800	0.1	20
TOTAL[5]	374	76,000	51,900	248,200	0.2	21

[1]The range of San Francisco employees and households is based on a report prepared by Recht Hausrath Associates, referenced as Appendix C in the 101 Montgomery Street Final EIR, EE 80.26, certified May 7, 1981 (15-30% of all employees would reside in San Francisco and 1.4 workers would occupy each household) and Office Housing Production Program (OHPP) Interim Guidelines, Department of City Planning, January 22, 1982 (40% of all employees would reside in San Francisco and 1.8 workers would occupy each household).

[2]Distribution of employees is based on the Department of City Planning's Guidelines for Environmental Review: Transportation Impacts, September 1983, page 13. The percentages have been weighted to account for OHPP Guidelines (i.e., 40% of employees reside in San Francisco) as follows: 9% in the North Bay, 13% on the Peninsula, and 38% in the East Bay. The net project household demand is based on net new office workers and an average of 1.3 workers per household, based on 1980 Census Data.

[3]Cumulative housing demand calculated from data on office projects presented in Table E-2, Appendix E, including those under construction (5,530,950 sq.ft.), approved (4,760,625 sq. ft.), or under formal review (8,721,295 sq. ft.)

[4]Net housing stock growth is based on Projections 79, Association of Bay Area Governments, January 1980. Projections contained in that document for 1980-1990 were prorated to reflect 1982-1990 net housing stock growth.

[5]The total reflects the high end of the range for San Francisco housing demand. If the low end of the range occurs in San Francisco, then the housing demand in other areas would be higher than shown in the table, since the total housing demand will remain constant regardless of the regional distribution.

Source: EIP Corporation.

TABLE F-2

HOUSING AFFORDABILITY BY HOUSEHOLD INCOME

Gross Annual Income Per Household or Per Individual	Maximum Affordable Monthly Housing[1] Expenditure	Housing Cost and Type of Unit	
		Monthly[2] Cost	Type of Unit (Price)
$ 5,000	$ 125		
8,300[3]	208		
10,000	250		
10,680	267	$ 267	Census Median Rent[6]
11,560	289	289	Studio Apartments[7]
15,000	375		
18,200	455	455	Median Rent, All Units[7]
20,000	500		
23,520	588	588	Rent, 3+ Bedroom Units[7]
25,000[4]	625		
27,300	683		
30,000	750		
35,000	875		
40,000	1,000		
40,880	1,022	1,022	Lowest House Price ($95,000)[8]
45,000	1,125	1,125	Census Median Value ($104,600)[6]
50,000	1,250		
52,560	1,314		
55,000	1,375		
65,080	1,627	1,627	Median House Price ($151,203)[8]
101,880	2,547	2,547	Highest House Price ($236,750)[8]
370,800[5]	7,500		

Footnotes on following page

TABLE F-2
(continued)

[1]The Office Housing Production Program (OHPP) Interim Guidelines, January 1982, define affordable housing as follows:

> Rental expenses not exceeding 30% of gross monthly income, adjusted for family size; and home ownership expenses not exceeding 38% of gross monthly income, adjusted for family size, including mortgage payments, property taxes, insurance, and/or homeownership association dues.
>
> For the purpose of this table, 30% of gross monthly income is used to calculate housing affordability for both renters and owners. For owners it is assumed that eight percent of gross monthly income would cover property taxes, insurance, and/or homeownership association dues and other related expenses. No adjustment has been made for family size because family circumstances vary widely.

[2]Monthly housing costs refer to rents and mortgage payments for the housing prices shown in parentheses; sources of rents and house prices are as footnoted. Monthly costs of ownership housing were calculated as monthly mortgage expenses assuming 20% down payment, 30-year mortgage, and 16% interest rate, not including insurance, property taxes, and other related housing costs.

[3]U.S. Bureau of Labor Statistics, March 1981, Area Wage Survey for the San Francisco-Oakland, California Metropolitan Area, March 1981. $8,300 was the mean 1980 income of inexperienced file clerks, one of the lowest-paid office occupations listed. This value has been inflated to $10,260 in 1983 dollars using the Consumer Price Index for all urban consumers in the San Francisco-Oakland Standard Metropolitan Statistical Area (SMSA).

[4]The $27,300 income figure was derived by inflating the $16,300 median income of downtown office workers from the 1974 SPUR survey through December 1981 by 67% using U.S. Bureau of Labor Statistics national wage information for nonsupervisory finance, insurance, and real estate sector employees through December 1981, and the Consumer Price Index thereafter.

[5]Montgomery-Washington Building FEIR, 81.104E, certified January 28, 1982. The median salary of wage earners at 601 Montgomery Street was estimated to be $52,560 and the highest salary for corporate officers $300,000, according to a 1981 survey.

[6]City Planning and Information Services, 1980 Census Information, March 1982. Rental data include residential hotels whose rent levels may be substantially lower than other types of rental dwellings and may therefore have an effect on the median rent.

[7]Department of City Planning, Rent Survey, 1980. These data are based on a small nonrandom sample of newspaper ads and may not reflect true rental costs.

[8]San Francisco Board of Realtors, Multiple Sales Service, October 5, 1981. (Annual data on housing sales prices including all homes sold from February 11, 1981 to October 1, 1981).

NOTE: The age of the 1974 SPUR study referenced in footnote 4 above and the small sample size of the 601 Montgomery Street survey referenced in footnote 5 limit the statistical accuracy of the data when applied to individual proposed office projects. These two sources constitute the only salary information available for downtown San Francisco employees.

TABLE F-3

SUMMARY OF RECENT STUDIES ON FISCAL IMPACTS OF DOWNTOWN DEVELOPMENT

STUDY, AUTHOR, DATE	PURPOSE OF STUDY	DATA SOURCES	STUDY METHODOLOGY	CONCLUSIONS
"Fiscal Concerns" in Downtown San Francisco Conservation and Development Planning Program, Phase I Study, Sedway/Cooke, et al., October 1979, pp. 56-59	To qualitatively assess the likely fiscal impact of new development in the C-3 area under Proposition O.	SPUR STUDY (1975)	SPUR cost/revenue estimates for downtown in 1973 and for projected growth 1974-1990 were assumed. Proposition 13's effect on revenues and the possible need for increased transportation infrastructure were considered. Generalized conclusions about fiscal impact of new development were drawn.	1) After Proposition 13, "costs may exceed revenues in the downtown by as much as 25%." 2) "[N]ew downtown development will not solve the city's growing fiscal problem; without new revenue sources, development will make it worse in the long run."
Downtown Highrise District Cost Revenue Study, Arthur Andersen & Co., November 1980	To quantify for 1976-77 and 1978-79 how much revenue the C-3-O area generated and how much it costs to provide city services to the area.	Data compiled from city records and through conversations with city officials.	Only revenues generated within the C-3-O and costs of providing services to the C-3-O counted. "The principle guiding the study methodology was to calculate the amount of revenue that San Francisco would lose and the costs that could be reduced if the Downtown Highrise District were a separate city."	The C-3-O generated $56.79 million in 1976-77, or 61% more than the cost of city services to the area. In 1978-79, revenues were $53.29 million, or 48% greater than costs.
"Fiscal Considerations" Appendix C, 101 Montgomery Street FEIR, Recht Hausrath & Associates, January 1981.	To draw generalized conclusions about "how new development downtown in a post-Proposition 13 environment is likely to change the City's fiscal health from what it would be without new development."	SPUR Study, city records and conversations with city officials.	Under alternative assumptions about the cost/revenue balance in existing buildings and in new buildings, the fiscal impact over time of new development was compared to that of no new development.	"[A]n on-going process of new development would improve the City's fiscal situation.
Downtown Highrise District Cost/Revenue Study, David Jones, February 1981.	To quantify for 1978-79 the revenues generated by businesses in the C-3-O and the service costs imposed on the city and BART by the C-3-O.	Arthur Andersen study.	The Jones study differs from the Andersen study primarily as follows: 1) Costs of BART (but not revenues to BART) are included; 2) Only revenues paid by businesses and building owners are considered; 3) Muni deficit is computed differently; 4) Most costs are estimated as a percentage of revenues rather than on the basis of actual service demand in the C-3-O.	The C-3-O imposed costs of $94.4 million on San Francisco and BART, or 125% more than the revenues the area's businessas and building owners generated to San Francisco.
Fiscal Impacts of New Downtown High-Rises on the City and County of San Francisco, Gruen Gruen + Associates March 1981	To quantitatively estimate city revenues from the C-3-O and costs of serving the C-3-O in 1998, assuming the addition of 30 million square feet of building space in the C-3-O between 1981 and 1998.	Arthur Andersen study; data compiled from city records and through conversations with city officials.	"Only direct effects are considered." Costs are only measured for services "provided within the physical limits of the C-3-O district" and revenues are limited to "taxes on buildings within the district and the activities that take place within those buildings." Assumes the Arthur Andersen study is accurate and builds upon it.	In 1980, ravenues from the 39 million square feet of building space in C-3-O were 1.66 times as large as costs. In 1998, after completion of the 30 million square feet of new space, revenues from the entire 69 million square feet of C-3-O building space would increase to 1.92 times as large as costs.

SOURCE: Recht, Hausrath and Associates, January 1981.

TABLE F-4

SECONDARY EMPLOYMENT DISTRIBUTION
IN THE BAY AREA AS A RESULT OF
THE MULTIPLIER EFFECT

Sector	Employees
Agriculture and Primary Processing	15
Construction	37
Manufacturing	75
Transportation, Communications, Utilities	61
Trade	115
Finance, Insurance, Real Estate	96
Services and Government	197
TOTAL	600[1]

[1]Total does not add up because of rounding.

Source: EIP, based on Cooperative Extension Service, University of California, Berkeley, San Francisco Bay Area Input-Output Model 1967-1974, August 1978. The figures presented in this table assume that the jobs in the project would be primarily in the FIRE and retail sectors.

APPENDIX G

AIR QUALITY

SAN FRANCISCO AIR POLLUTANT SUMMARY 1979-1983[1]

Pollutant	Federal Standard[2]	State Standard[3]	1979	1980	1981	1982	1983
Carbon Monoxide (CO)							
1-hour average (ppm)	35	20					
Highest hourly average			20	10	8	--	--
No. of exceedances			0	0	0	0	0
8-hour average (ppm)	9	9					
Highest 8-hour average			13.8	7.5	5.3	9	5.1
No. of exceedances			1	0	0	1	0
Ozone (0_3)							
1-hour average (ppm)	.12[4]	.10					
Highest hourly average			0.08	0.09	0.07	.08	.13
No. of exceedances			0	0	0	0	1
Nitrogen Dioxide (NO_2)							
1-hour average (ppm)	None	.25					
Highest hourly average			0.16	0.17	0.11	.13	.13
No. of exceedances			4	0	0	0	0
Sulphur Dioxide ($S0_2$)							
24-hour average (ppm)	.14	.05					
Highest 24-hour average			0.034	0.018	0.016	.012	.018
No. of exceedances			0	0	0	0	0
Total Suspended Particulate (TSP)							
24-hour average (ug/m^3)	260	100					
Highest 24-hour average			117	173	103	106	117
No. of exceedances			1	6	1	3	4

SAN FRANCISCO AIR POLLUTANT SUMMARY 1979-1983[1]

Pollutant	Federal Standard[2]	State Standard[3]	1979	1980	1981	1982	1983
Annual Geometric Mean (ug/m^3)[5]	75	60					
Annual Geometric Mean			42.0	52.1	56.0	57.0	55.0
Annual Exceedances			No	No	No	No	No
Lead							
3-month Average (mg/m^3)	1.5	None					
Highest 3-month average			0.95	0.53	0.35	---	---
No. of exceedances			0	0	0	---	---
1-month Average (mg/m^3)	None	1.5	—	—	—	—	—
No. of exceedances	---	—	—	—	—	—	—

[1]1979 data collected at 939 Ellis Street. 1980-81 data collected at 900 23rd Street.

[2]Federal standard is not to be exceeded more than once per year. Annual average standards are not be exceeded.

[3]State standards are not to be equalled or exceeded. The State 1-hour average CO standard was reduced from 40 ppm to 20 ppm in 1982.

[4]The federal standard is given in terms of Expected Annual Excesses which is based on a 3-year running average.

[5]The annual Geometric Mean is a single number which applies to an entire year of data. "No" indicates TSP concentrations did not exceed 60 (ug/m^3).

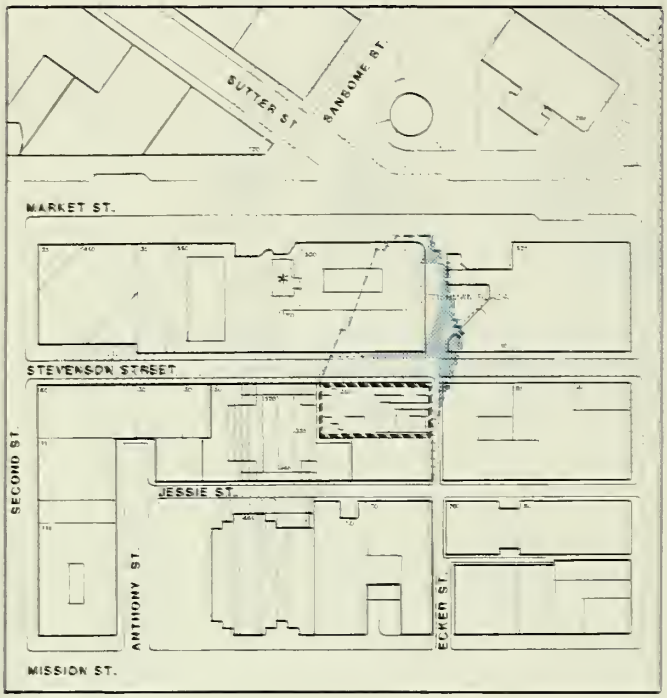
Note: ppm = parts per million
ug/mg^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter

Source: BAAMQD, Air Pollution in the Bay Area by Station and Contaminant, March issues, 1980-1984; and California Air Resources Board, California Air Quality Data, Annual Summaries, 1979-1982.

APPENDIX H

SHADOW PATTERNS: 11:00 a.m. and 1:00 p.m.

SHADOW PATTERNS: MARCH 21



11 A.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

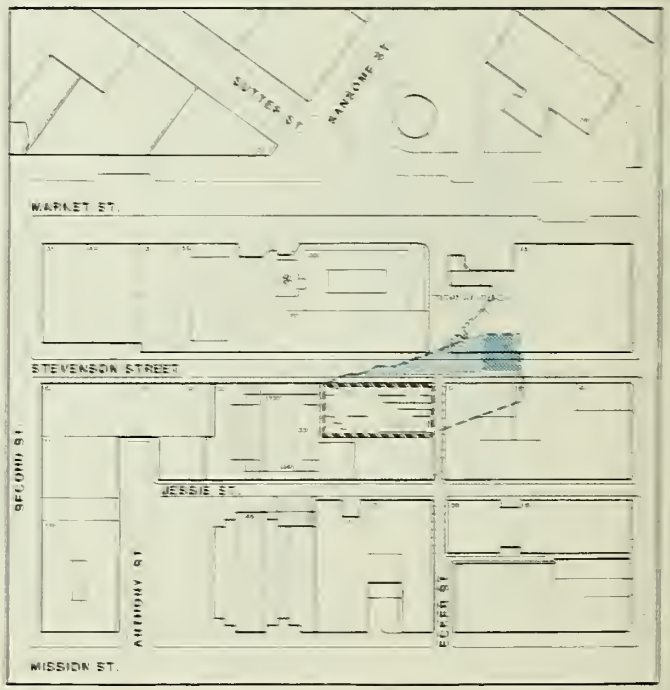
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA +

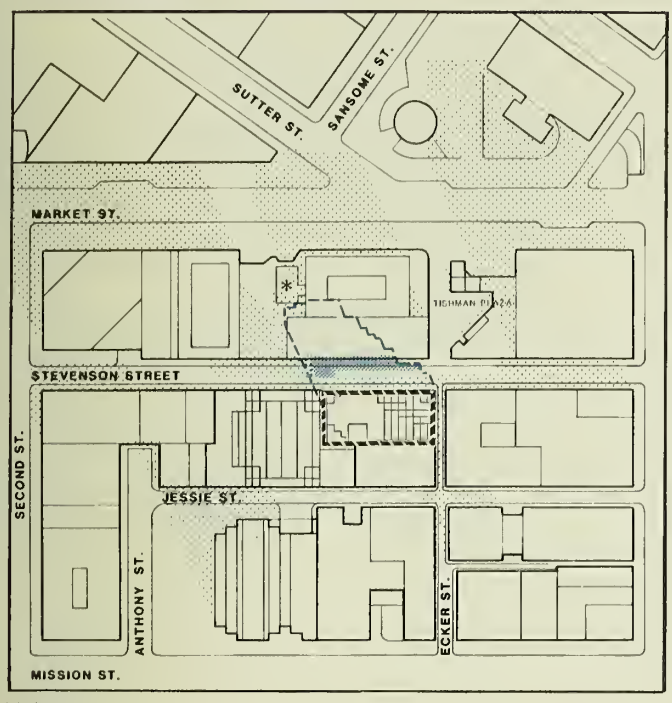
SOURCE: EIP CORPORATION

SCALE 0 100 200 400 FEET



1 P.M.

SHADOW PATTERNS: JUNE 21



11 A.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

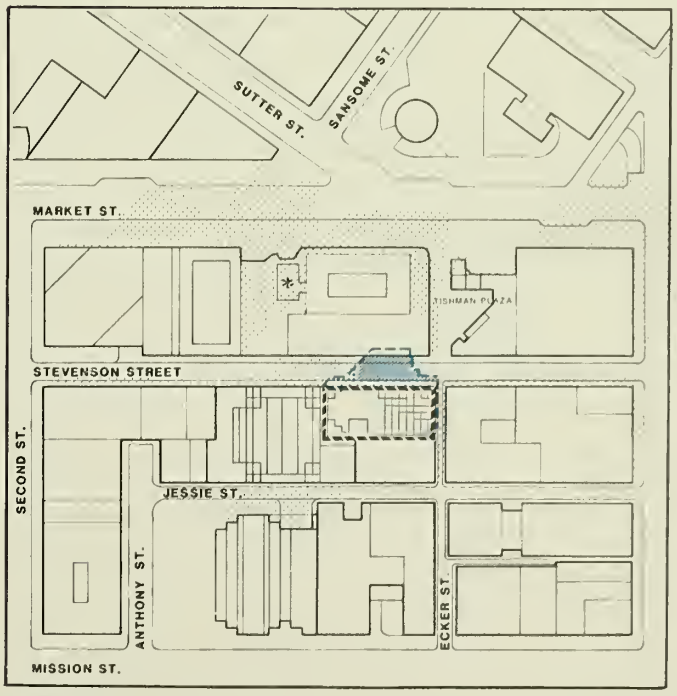
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

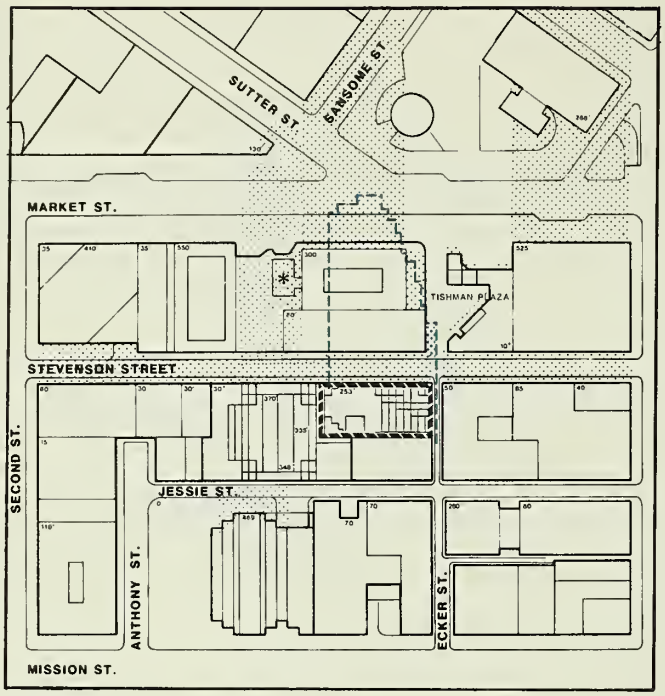
SOURCE: EIP CORPORATION

SCALE 0 100 200 400 FEET



1 P.M.

SHADOW PATTERNS: SEPTEMBER 21



11 A.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

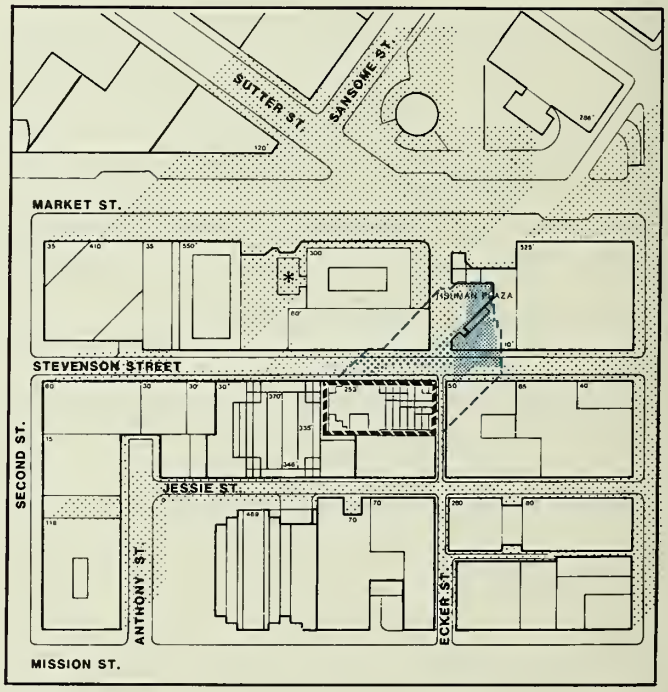
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

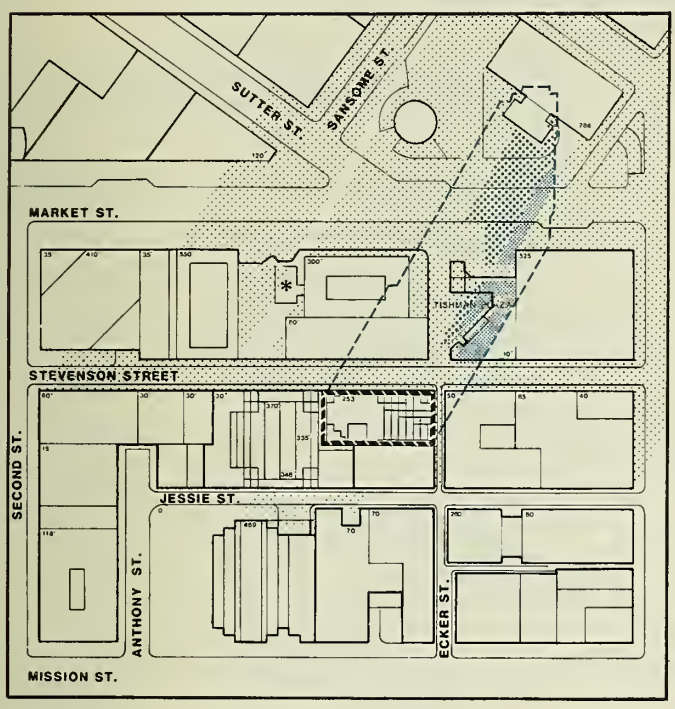
SOURCE: EIP CORPORATION

SCALE 0 100 200 400 FEET



1 P.M.

SHADOW PATTERNS: DECEMBER 21



11 A.M.

SHADOWS FROM EXISTING BUILDINGS

SHADOWS FROM OTHER PROPOSED PROJECTS

OVERLAPPING SHADOWS FROM 49 STEVENSON, 71 STEVENSON (APPROVED) AND LINCOLN PLAZA (UNDER REVIEW)

SHADOWS FROM PROPOSED 49 STEVENSON PROJECT

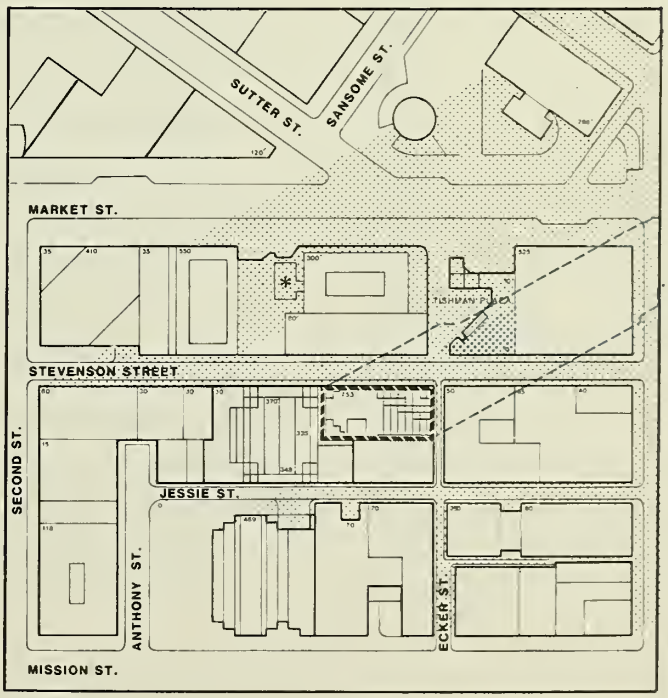
PROJECT SITE BOUNDARY

OUTLINE OF PROJECT SHADOW (Flat Plane)

PUBLICLY ACCESSIBLE PORTION OF CHEVRON PLAZA *

SOURCE: EIP CORPORATION

SCALE 0 100 200 400 FEET



1 P.M.

APPENDIX I

RATED BUILDINGS DEMOLISHED IN THE C-3 DISTRICT, 1979 THROUGH OCTOBER 1982

BUILDINGS TOTALLY DEMOLISHED:

Block/Lot	Name	Address	Heritage /DCP Rating
237/15	White & Co. Building	280 Battery Street	B/-
289/4	Holbrook Building	585 Sutter Street	B/3
329/2	Sommer & Kaufmann Building	828 Market Street	A/3
3709/4	Yawman-Erbe Building	50 Fremont Street	B/-
329/2A	Hart, Schaffner & Marx Building	840 Market Street	B/-
3709/7	—	400-418 Mission Street	C/-
3709/10	Golden Gate Building	51-63 First Street	C/-
292/6	Thomson & Orman Building	110-116 Kearny Street	C/-
292/8	White Building	120-130 Kearny Street	B/-
292/4	Foxcroft Building	68-82 Post Street	B/-
237/16	—	353 Sacramento Street	B/-
288/5	—	109-123 Montgomery St.	C/-
288/4	Wilson Building	125-129 Montgomery St.	C/-
288/3	—	133-137 Montgomery St.	C/-
288/2	Steil Building	141 Montgomery Street	B/-
263/2	Oceanic Building	Two Pine Street	B/-
263/4	Kirkham Building	64-70 Pine Street	C/-
263/5	—	124 Front Street	C/-
263/6	—	136 Front Street	C/-
263/7	Isuan Building	140 Front Street	C/-
263/8	Commercial Building	146-150 Front Street	C/-
313/14	City of Paris	199 Geary Blvd.	A/-
313/15	Whitney Building	133-153 Geary Blvd.	B/-
295/7	Fitzhugh Building	364-384 Post Street	A/-
3712/25	Young Building	101-105 Market Street	B/-
3712/-	Lincoln Hotel	115-121 Market Street	C/-
3712/-	—	125-131 Market Street	C/-
3712/-	—	9-23 Main Street	C/-

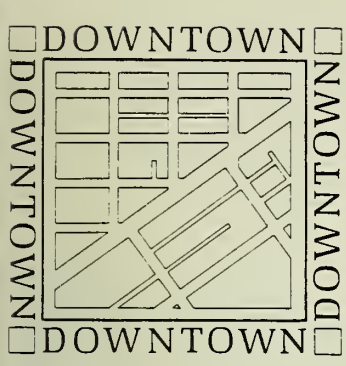
BUILDINGS TOTALLY DEMOLISHED: (cont'd)

Block/Lot	Name	Address	Heritage /DCP Rating
269/2	—	334 Bush Street	C/-
269/2A	—	344 Bush Street	C/-
3703/66	Forest Building	1053-1055 Market St.	C/-
223/32	Powell Cinema	35-41 Powell Street	C/-
208/2	—	643 Montgomery Street	C/-
3724/14	—	820 Howard Street	-/3

BUIDLINGS PARTIALLY DEMOLISHED:

289/31	Anglo & London Paris Bank	One Sansome Street	A/5
239/12	A. Borel & Co. Building	440 Montgomery Street	A/-
239/14	Italian American Bank	460 Montgomery Street	A/-

SOURCE: Landmarks Preservation Advisory Board and Roger Owen Boyer & Associates



PRESERVING THE PAST

BACKGROUND

Buildings in San Francisco's downtown were, until recently, the product of a short period lasting from 1906 until about 1930. After the earthquake and fire there was a rush to rebuild. By 1910, the area now considered the retail and financial districts was largely rebuilt with little evidence of the disaster remaining. Many of the new buildings were designed by architects trained in the same tradition (at the Ecole de Beaux Arts in Paris or under instructors trained there) and responding to a new building technology. As a result, the downtown had a coherent, unified appearance.

Downtown was characterized by light-colored, masonry-clad structures from six to twelve stories in height with rich, distinctive, and eclectic designs.

Conscious efforts were made to relate buildings to both the street and adjacent buildings by use of similar cornice and belt course lines, and sympathetic materials, scale, and color. Large areas of glass, made possible by steel frame construction, were often used to allow light to penetrate into interiors. Buildings were constructed to the street and property lines, defining the street edge and producing a sense of enclosure. The relatively low structures incorporated a considerable amount of ornamentation and articulation, creating a pedestrian scale. Later development, up until the mid-1920s, continued this style and character.

During the late 1920s, though, many skyscrapers (for example, the Russ, Shell, and Pacific Telephone buildings) were of a more monumental size. But by use of a similar scale, style, materials, color, solid to glass ratio, detailing, and belt courses, they blended with buildings built right after the earthquake and fire.

From the Depression until the 1950s, no major buildings were constructed downtown. When construction resumed, buildings were of a much different character. Increasingly, they were much larger in scale than earlier buildings, often dark in color or with reflective glass, with few details to relate the building to pedestrians or to adjacent buildings. The new 'International Style' architecture made an office building a

San Francisco Department of City Planning, The Downtown Plan, A Proposal for Citizen Review, August 1983.

rectangular box with sheer, unornamented walls without setbacks or cornices. Continuity of the building form along the street was lost as buildings were set back and placed in plazas, each creating a "tower in a park."

In recent years, there has been increasing concern over the loss of older buildings and the failure of their replacements to blend into the established character of their surroundings.

TYPICAL POST-FIRE DEVELOPMENT Amit Ghosh

The U.S. Supreme Court in Penn Central Transportation Company vs. New York City, 438 US 104 (1978), which upheld the constitutionality of mandatory retention of landmark buildings, clearly outlined the importance of preservation:

> Over the past 50 years, all 50 states and over 500 municipalities have enacted laws to encourage or require the preservation of buildings and areas with historic or aesthetic importance. These nationwide legislative efforts have been precipitated by two concerns. The first is the recognition that, in recent years, large numbers of historic structures, landmarks, and areas have been destroyed without adequate consideration of either the values represented therein or the possibility of preserving the destroyed properties for use in economically productive ways. The second is a widely shared belief that structures with special historic, cultural, or architectural significance enhance the quality of life for all. Not only do these buildings and their workmanship represent the lessons of the past and embody precious features of our heritage, they serve as examples of quality for today. "[H]istoric conservation is but one aspect of a much larger problem, basically an environmental one of enhancing--or perhaps developing for the first time--the quality of life for people."

The Foundation for San Francisco's Architectural Heritage (Heritage) has systematically evaluated and rated all buildings in the C-3 district constructed prior to 1945. For each building, architectural qualities (such as its style and design), environmental qualities (such as its continuity with surrounding development), and historic qualities (such as the architect or age of the structure) were considered.

The buildings were placed in four groups:

> A-Highest Importance - Buildings with outstanding characteristics distinguished by outstanding qualities of architecture, historical values, and relationship to the environment.
>
> B-Major Importance - Buildings of individual importance notable for their overall quality, rather than any particular outstanding characteristics.
>
> C-Contextual Importance - Buildings distinguished by their scale, materials, compositional treatment, cornice, and other features that provide the setting for more important buildings and add visual richness and character to the downtown area.
>
> D-Minor or No Importance - Buildings that, because of alterations or lack of quality in the original structure, are not significant structures.

Of the 1,700 buildings downtown, 127 were rated A--highest importance, 241 were rated B--major importance, and 789 were rated C--contextual importance.

In recent years, an average of eight A- and B-rated buildings a year have been demolished to make way for new development. In the absence of stricter controls, seven or eight significant buildings a year can be expected to be demolished in the future.

FITZHUGH BUILDING - DEMOLISHED 1978

Article 10 of the Planning Code provides a process whereby a building can be declared a landmark. Demolition of landmarks can be delayed for only a year. Of the remaining 344 A- and B-rated buildings, 35 have been declared landmarks. Since the landmark designation process began in 1967, an average of 2.3 downtown buildings a year have been designated.

It is clear that more comprehensive and far-reaching steps need to be taken if additional buildings are not to be lost.

In the recent past a number of developments have been approved that preserved facades of significant buildings. While an important step, this limited form of preservation is no longer seen as sufficient. The more desirable approach is to shift development to sites other than those occupied by significant structures.